

Jennison - Wright Site

Engineering Evaluation/Cost Analysis

969693

Granite City, Illinois



July 1999

Volume 2 - Appendices

prepared by:
ecology and
environment, inc.



**Engineering Evaluation/
Cost Analysis Report
Jennison-Wright Site
Granite City, Illinois**

Volume 2

July 1999

Prepared for:

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
Bureau of Land
1021 North Grand Avenue East
Springfield, Illinois 62794-9276



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A

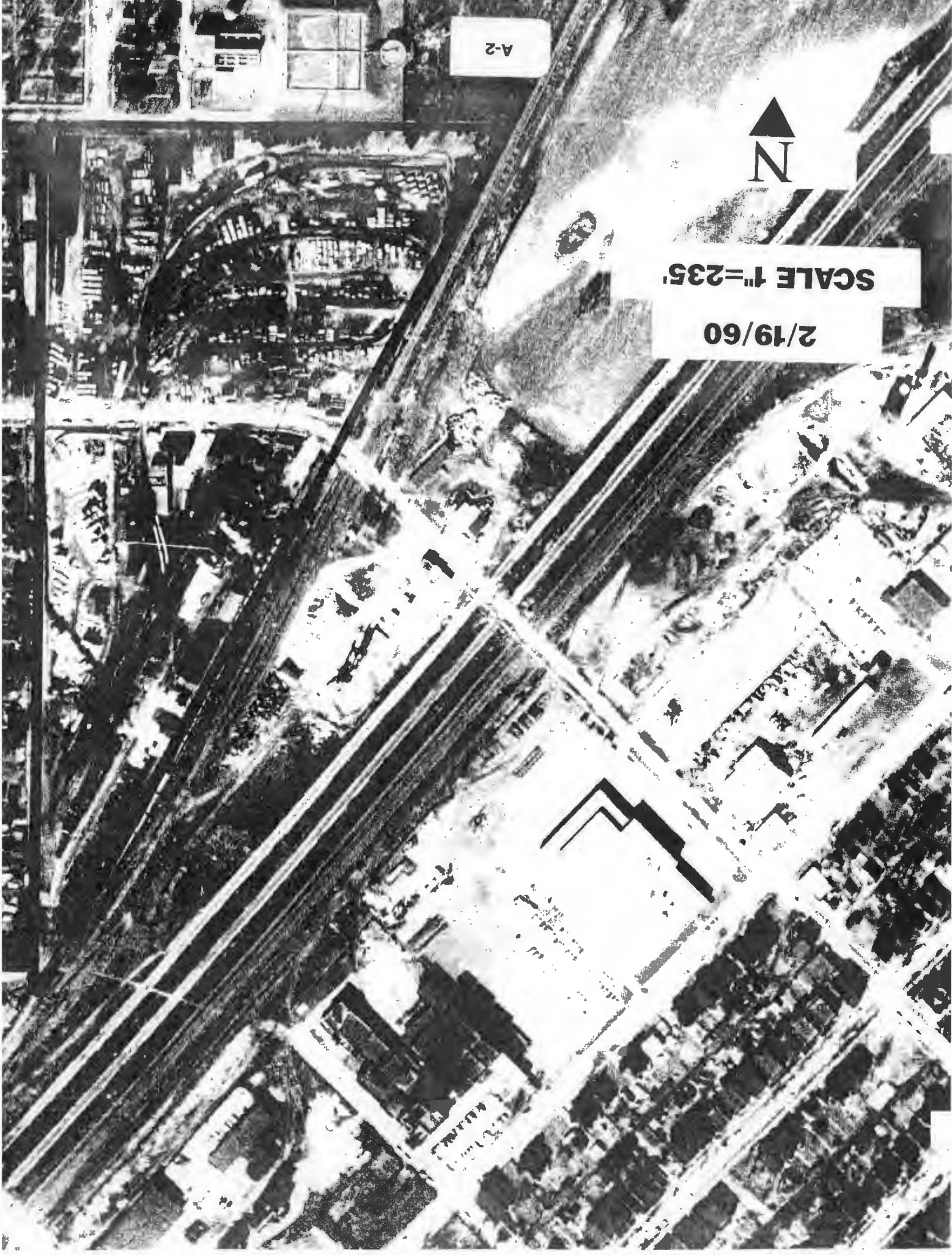
Aerial Photographs

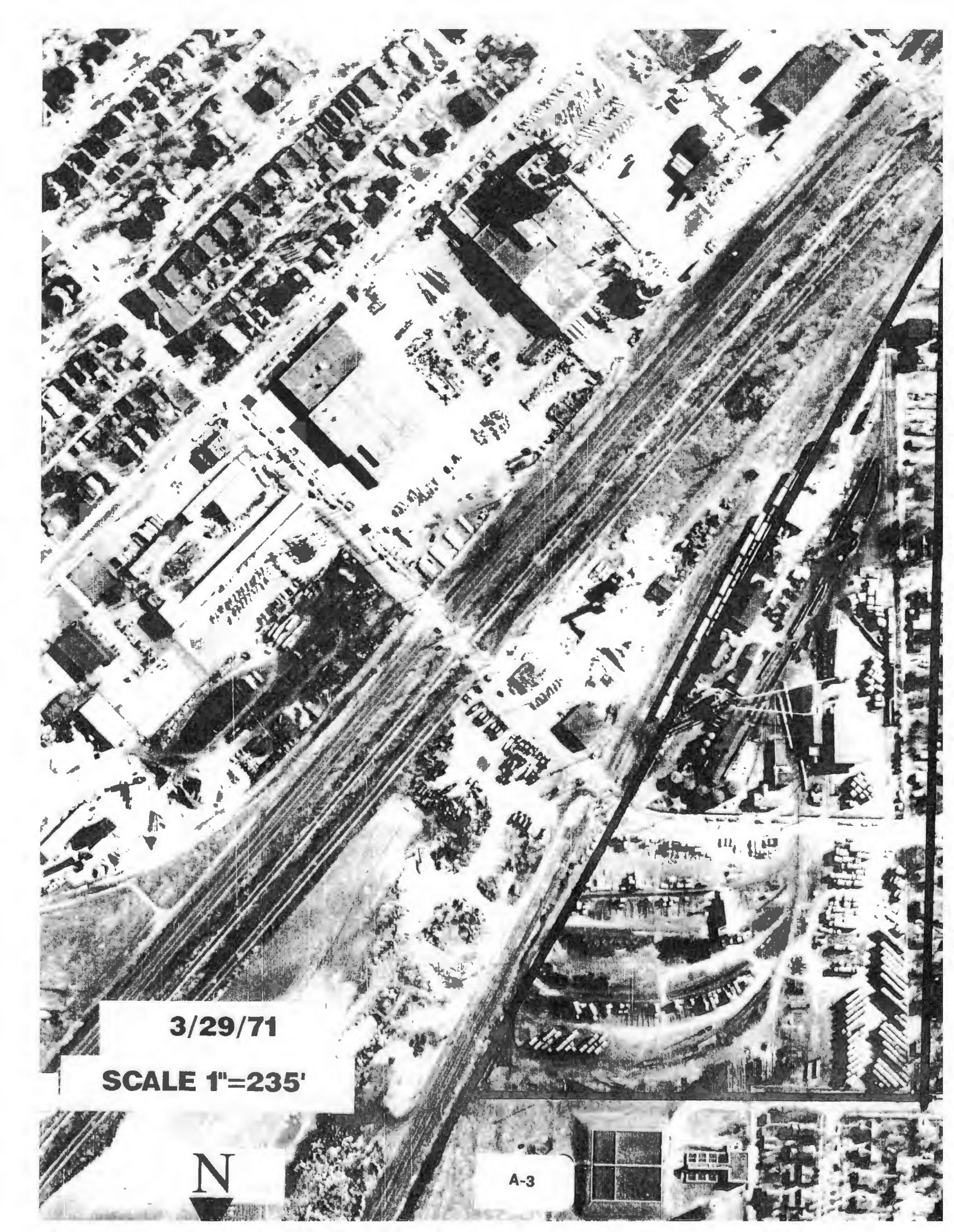
A-2



SCALE 1"=235'

2/19/60



An aerial photograph of a city street intersection. The image is oriented diagonally. A date stamp '3/29/71' is located in the lower-left quadrant. A scale 'SCALE 1"=235\'' is located in the lower-left quadrant. A north arrow is located in the lower-left quadrant. A small inset image of a building is located in the lower-right quadrant. The main image shows a street intersection with various buildings, trees, and a large open area. The image is in black and white.

3/29/71

SCALE 1"=235'

N

A-3



12/19/79

This is a black and white aerial photograph showing a complex industrial and residential landscape. A major railway line with multiple tracks runs diagonally from the bottom left towards the top right. To the left of the tracks, there is a dense residential area with many small houses. To the right of the tracks, there are several large industrial buildings, some with flat roofs, and a large open area that appears to be a parking lot or a construction site with many vehicles. The overall scene is a mix of urban development and industrial infrastructure.

SCALE 1"=235'

N

A-4

B

Boring Logs

GEOPROBE LOG - LOCATION NO. SB01/GP01

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois Total Depth of Hole (feet BGS): 18'

Geoprobe Location: _____ Ground Elevation (feet above MSL): 422 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe Date Started: 8-5-97

Operator/Geologist: M. Densmore / S. Johnson Date Finished: 8-6-97

gs elevation 422 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
422			0.0-2.0 <u>SILT</u> , brown, little fn. gravel, loose, dry.	MC1	NA	63	20	Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
421	1							
420	2		2.0-4.0 <u>SAND</u> , dark brown/black, fn.-m. sand, little silt, some fn. gravel, loose-medium, moist.					
419	3			MC2	NA	75	5-10	Odor and greasy appearance in soil @ 2'-4'.
418	4		4.0-9.1 <u>SILTY CLAY</u> , gray, few brown mottlings, little sand @ 6.5', medium, moist.					
417	5							
416	6			MC3	NA	75	50	Soil sample SB01 (5-6) collected at 1715 (8-5-97) for PCP and PAH analysis.
415	7							
414	8		9.1-12.0 <u>SAND</u> , gray, vfn.-fn. sand, little-some silt, loose-medium, moist.					
413	9			MC4	NA	88	10	Soil sample SB01 (12-13) collected at 1725 (8-5-97) for PCP and PAH analysis.
412	10							
411	11		12.0-16.0 <u>SANDY SILT</u> , gray, vfn.-fn. sand, loose-medium, moist, wet @ 15'.					
410	12							Groundwater sample GP01-40 collected at 1200 (8-6-97) for PCP and PAH analysis.
409	13							
408	14							
407	15							
406	16		End of Boring @ 16.0' (probe advanced to 40' without soil sampling for a groundwater sample collection).					
405	17							
404	18							



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GEOPROBE LOG - LOCATION NO. SB02/GP02

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____ Ground Elevation (feet above MSL): 422 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe Date Started: 8-5-97

Operator/Geologist: M. Densmore / S. Johnson Date Finished: 8-6-97

Geoprobe Elevation 422 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
422			0.0-1.5 <u>SILTY GRAVEL</u> , dark gray, c. gravel, slag, loose, dry.					Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
421	1			MC1	NA	63	0	
420	2		1.5-4.0 <u>SAND</u> , brown, vfn.-fn. sand, trace-little silt, loose, moist.					
419	3							Soil sample SB02 (6-7) collected at 1545 (8-5-97) for PCP and PAH analysis.
418	4							
417	5		4.0-16.0 <u>SAND/SANDY SILT</u> , interbedded brown vfn.-fn. sand, trace-little silt and brown vfn.-fn. sandy silt, loose, moist.	MC2	NA	75	0	
416	6							
415	7							Soil sample SB02 (12-13) collected at 1555 (8-5-97) for PCP and PAH analysis.
414	8							
413	9							
412	10			MC3	NA	63	0	
411	11							Groundwater sample GP02-40 collected at 1040 (8-6-97) for PCP and PAH analysis.
410	12							
409	13							
408	14			MC4	NA	75	0	
407	15							
406	16		End of Boring @ 16.0' (probe advanced to 40' without soil sampling for a groundwater sample collection).					
405	17							
404	18							



GEOPROBE LOG – LOCATION NO. SB03/GP03

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 422 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 8-5-97

Operator/Geologist: M. Densmore / S. Johnson

Date Finished: 8-6-97

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
422		0.0-1.0 <u>SILTY GRAVEL</u> , brown, fn.-c.gravel, slag, loose, dry.					
421		1.0-6.1 <u>SILTY CLAY</u> , dark gray, grading to brown @ 4.8', medium, moist.	MC1	NA	63	0	Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
420							
419							
418							
417							
416		6.1-8.0 <u>SAND</u> , brown, vfn.-fn. sand, little-some silt, loose, moist.	MC2	NA	90	0	Soil sample SB03 (6-7) collected at 1450 (8-5-97) for PCP and PAH analysis.
415							
414		8.0-16.0 <u>SAND/SILT</u> , interbedded brown vfn.-fn. sand, little-some silt and brown silt, some vfn. sand, loose-medium, moist, wet @ 15.5'.	MC3	NA	63	0	
413							
412							
411							
410							Soil sample SB03 (12-13) collected at 1505 (8-5-97) for PCP and PAH (duplicate) analysis.
409							
408			MC4	NA	88	10	
407							
406		End of Boring @ 16.0' (probe advanced to 40' without soil sampling for a groundwater sample collection).					Groundwater sample GP03-40 collected at 0840 (8-6-97) for PCP and PAH (duplicate) analysis.
405							
404							



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GEOPROBE LOG - LOCATION NO. SB04/GP04

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Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 417 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 7-30-97

Operator/Geologist: M. Weber / S. Johnson

Date Finished: 7-30-97

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
417		0.0-1.0 <u>SILTY GRAVEL</u> , dark gray/black, c. gravel, cinders, slag, loose, dry.					
416	1	1.0-4.5 <u>SILTY CLAY</u> , brown, some gray mottling, medium, dry-moist.	MC1	NA	75	0	Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
415	2						
414	3						
413	4						
412	5	4.5-16.0 <u>SAND</u> , brown, vfn.-fn. sand, loose, moist, wet @ 15'.	MC2	NA	88	0	Soil sample SB04 (5-7) collected at 1440 for PCP, PAH, and CLP analysis.
411	6						
410	7						
409	8						
408	9						
407	10		MC3	NA	63	0	
406	11						
405	12						Soil sample SB04 (12-13) collected at 1455 for PCP and PAH analysis.
404	13						
403	14		MC4	NA	75	0	
402	15						
401	16	End of Boring @ 16.0' (probe advanced to 25' without soil sampling for a groundwater sample collection).					Groundwater sample GP04-25 collected at 1540 for PCP and PAH analysis.
400	17						
399	18						



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GEOPROBE LOG – LOCATION NO. SB05/GP05

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 422 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 7-30-97

Operator/Geologist: M. Weber / S. Johnson

Date Finished: 7-31-97

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
422		0.0-0.8 <u>SILTY GRAVEL</u> , black, c. gravel, loose, dry.					
421		0.8-3.2 <u>SILTY SAND</u> , dark brown, vfn.-fn. sand, loose-medium, dry-moist.	MC1	NA	100	0	Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
420							
419		3.2-8.9 <u>SAND</u> , brown, vfn.-fn. sand, little silt, loose-medium, moist.					
418							
417			MC2	NA	50	0	Soil sample SB05 (5-6) collected at 1630 (7-30-97) for PCP and PAH analysis.
416							
415							
414							
413		8.9-16.0 <u>SILT</u> , brown, trace-little clay and vfn. sand, medium, moist, wet @ 14'.	MC3	NA	75	0	
412							
411							
410							
409							Soil sample SB05 (12-13) collected at 1645 (7-30-97) for PCP and PAH analysis.
408			MC4	NA	75	0	
407							
406		End of Boring @ 16.0' (probe advanced to 28' without soil sampling for a groundwater sample collection).					Groundwater sample GP05-28 collected at 1010 (7-31-97) for PCP and PAH analysis.
405							
404							



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GEOPROBE LOG - LOCATION NO. SB06/GP06

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Site / Location: Jennison-Wright / Granite City, Illinois Total Depth of Hole (feet BGS): 16
 Geoprobe Location: _____ Ground Elevation (feet above MSL): 421 (approx.)
 Refusal at (feet BGS): NA
 Company/Equipment: IEPA Geoprobe Date Started: 7-31-97
 Operator/Geologist: M. Weber / S. Johnson Date Finished: 7-31-97

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
421		0.0-2.5 <u>CLAYEY SILT</u> , dark brown, medium, moist.					
420							
419			MC1	NA	100	0	
418		2.5-3.1 <u>SANDY SILT</u> , brown, vfn. sand, loose-medium, moist.					
417		3.1-10.5 <u>SAND</u> , brown, vfn.-fn. sand, trace-little silt, loose-medium, moist.					
416							
415			MC2	NA	100	0	
414							
413							
412							
411			MC3	NA	100	0	
410		10.5-12.0 <u>SANDY SILT</u> , brown, vfn.-fn. sand, trace clay, medium, moist-wet.					
409							
408		12.0-16.0 <u>SILTY CLAY</u> , brown to gray, little-some vfn. sand, medium, moist-wet.					
407							
406			MC4	NA	75	0	
405							
404		End of Boring @ 16.0' (probe advanced to 24' without soil sampling for a groundwater sample collection).					
403							



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GEOPROBE LOG - LOCATION NO. SB07/GP07

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 419 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 7-31-97

Operator/Geologist: M. Weber / S. Johnson

Date Finished: 7-31-97

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
419		0.0-1.0 <u>SILTY GRAVEL</u> , dark gray, fn.-c. gravel, loose, dry.					
418		1.0-5.0 <u>SILTY CLAY</u> , dark brown, medium, moist.					
417			MC1	NA	100	0	Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
416							
415							
414		5.0-8.7 <u>SANDY SILT</u> , brown, vfn.-fn. sand, trace clay, loose-medium, moist.					
413			MC2	NA	75	0	Soil sample SB07 (5-7) collected at 1315 for PCP, PAH, and CLP analysis.
412							
411							
410		8.7-16.0 <u>SAND</u> , brown, vfn.-fn. sand, trace silt, loose, moist-wet.					
409			MC3	NA	63	0	
408							
407							
406			MC4	NA	63	0	Soil sample SB07 (12-13) collected at 1330 for PCP and PAH analysis.
405							
404							
403		End of Boring @ 16.0' (probe advanced to 20' without soil sampling for a groundwater sample collection).					Groundwater sample GP07-20 collected at 1420 for PCP, PAH, and CLP analysis.
402							
401							



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GEOPROBE LOG - LOCATION NO. SB08/GP08

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Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 421 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 8-4-97

Operator/Geologist: M. Densmore / S. Johnson

Date Finished: 8-4-97

gs elevation 421 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
421			0.0-1.0 <u>SANDY SILT</u> , dark brown, fn. sand, loose-medium, dry.					
420	1		1.0-8.6 <u>SAND</u> , brown, vfn.-fn. sand, trace silt, loose, dry-moist.	MC1	NA	100	10-30	Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
419	2							
418	3							
417	4							
416	5							
415	6			MC2	NA	100	10	Soil sample SB08 (6-8) collected at 0830 for PCP, PAH, and CLP analysis.
414	7							
413	8							
412	9		8.6-12.0 <u>SANDY SILT</u> , gray, vfn. sand, loose, moist.	MC3	NA	100	5-15	
411	10							
410	11							Soil sample SB08 (11-12) collected at 0840 for PCP and PAH analysis.
409	12		12.0-16.0 <u>SANDY SILT/SAND</u> , interbedded gray vfn. sandy silt and gray vfn.-fn. sand, loose, moist, wet @ 14'.	MC4	NA	75	0	
408	13							
407	14							
406	15							
405	16		End of Boring @ 16.0' (probe advanced to 24' without soil sampling for a groundwater sample collection).					Groundwater sample GP08-24 collected at 0945 for PCP, PAH, and CLP analysis.
404	17							
403	18							



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GEOPROBE LOG - LOCATION NO. SB09/GP09

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 422 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 7-31-97

Operator/Geologist: M. Weber / S. Johnson

Date Finished: 7-31-97

gs elevation 422 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
422			0.0-1.0 <u>SILTY GRAVEL</u> , light gray, c. gravel, loose, dry.					Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
421	1		1.0-13.0 <u>SANDY SILT</u> , brown, vfn.-fn. sand, trace-little clay @ 12', loose-medium, moist, wet @ 13' (perched).	MC1	NA	75	0	
420	2							
419	3							
418	4			MC2	NA	63	0	Soil sample SB09 (5-6) collected at 1600 for PCP and PAH analysis.
417	5							
416	6							
415	7							
414	8			MC3	NA	75	0	Soil sample SB09 (12-13) collected at 1620 for PCP and PAH analysis.
413	9							
412	10							
411	11							
410	12		13.0-14.7 <u>SILTY CLAY</u> , gray to brown, medium-stiff, moist.	MC4	NA	88	0	Groundwater sample GP09-24 collected at 1755 for PCP and PAH analysis.
409	13							
408	14		14.7-16.0 <u>SAND</u> , brown, vfn.-fn. sand, trace silt, loose-medium, moist.					
407	15		End of Boring @ 16.0' (probe advanced to 24' without soil sampling for a groundwater sample collection).					
406	16							
405	17							
404	18							



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GEOPROBE LOG - LOCATION NO. SB11/GP11

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Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 422 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 8-4-97

Operator/Geologist: M. Densmore / S. Johnson

Date Finished: 8-4-97

GS Elevation 422 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
422			0.0-2.8 <u>SAND</u> , black, fn.-m. sand, little fn. gravel, trace silt and clay, slag, loose, moist.	MC1	NA	75	0	Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
421	1							
420	2							
419	3		2.8-6.2 <u>SILTY SAND</u> , brown, vfn. sand, loose, moist.	MC2	NA	75	0	Soil sample SB11 (6-7) collected at 1045 for PCP and PAH analysis.
418	4							
417	5							
416	6		6.2-12.7 <u>SAND</u> , brown, vfn.-fn. sand, trace silt, loose, moist.	MC3	NA	75	0	
415	7							
414	8							
413	9							
412	10							
411	11							
410	12							
409	13		12.7-16.0 <u>SANDY SILT</u> , brown, vfn. sand, trace clay, some iron staining at 14.5', medium, moist, wet @ 15'.	MC4	NA	75	0	Soil sample SB11 (12-13) collected at 1100 for PCP and PAH analysis.
408	14							
407	15							
406	16		End of Boring @ 16.0' (probe advanced to 24' and 46' without soil sampling for a groundwater sample collection).					Groundwater sample GP11-24 collected at 1145 for PCP and PAH analysis; groundwater sample GP11-46 collected at 1350 for PCP and PAH analysis.
405	17							
404	18							



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GEOPROBE LOG - LOCATION NO. SB12/GP12

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Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 421 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 8-1-97

Operator/Geologist: M. Weber / S. Johnson

Date Finished: 8-1-97

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
421		0.0-1.4 <u>SILTY GRAVEL</u> , gray, c. gravel, dense. dry.					
420							
419		1.4-4.0 <u>SILTY CLAY</u> , dark gray/black, fn. sandy clay @ 1.8', medium-stiff, moist.	MC1	NA	50	0	Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
418							
417							
416		4.0-8.0 <u>SANDY SILT</u> , brown, vfn. sand, trace clay, medium, moist.	MC2	NA	50	0	Soil sample SB12 (5-6) collected at 0820 for PCP and PAH analysis.
415							
414							
413		8.0-9.7 <u>SILTY SAND</u> , brown, vfn.-fn. sand, medium, moist.	MC3	NA	50	0	
412							
411		9.7-12.0 <u>SANDY SILT</u> , brown, vfn.-fn. sand, trace clay, medium, moist.	MC3	NA	50	0	
410							
409		12.0-16.0 <u>SANDY SILT/SAND</u> , interbedded brown vfn.-fn. sandy silt and brown vfn.-fn. sand, loose-medium, moist, wet @ 14.5'.	MC4	NA	63	0	Soil sample SB12 (12-14) collected at 0840 for PCP, PAH, and CLP analysis.
408							
407							
406							
405		End of Boring @ 16.0' (probe advanced to 24' without soil sampling for a groundwater sample collection).					Groundwater sample GP12-24 collected at 0945 for PCP, PAH, and CLP analysis.
404							
403							



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GEOPROBE LOG – LOCATION NO. SB13/GP13

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____ Ground Elevation (feet above MSL): 421 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe Date Started: 8-1-97

Operator/Geologist: M. Weber / S. Johnson Date Finished: 8-1-97

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
421		0.0-1.0 <u>SILTY GRAVEL</u> , dark brown/black, fn. gravel, cinders, slag, loose, dry.	MC1	NA	100	0	Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
420		1.0-2.7 <u>SILTY CLAY</u> , dark brown, little fn. sand, medium, moist.					
419		2.7-7.0 <u>SANDY SILT</u> , brown, vfn. sand, trace clay, medium, moist.					
418			MC2	NA	83	0	Soil sample SB13 (6-7) collected at 1535 for PCP and PAH analysis.
417							
416							
415			MC3	NA	75	0	Soil sample SB13 (12-13) collected at 1550 for PCP and PAH analysis.
414							
413							
412			MC4	NA	88	0	Groundwater sample GP13-24 collected at 1625 for PCP and PAH analysis.
411							
410							
409							
408							
407							
406							
405							
404							
403							
18		End of Boring @ 16.0' (probe advanced to 24' without soil sampling for a groundwater sample collection).					



IEPA – Jennison-Wright

B-13

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CHIPRO

GEOPROBE LOG - LOCATION NO. SB14/GP14

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois Total Depth of Hole (feet BGS): 16
 Geoprobe Location: _____ Ground Elevation (feet above MSL): 421 (approx.)
 Refusal at (feet BGS): NA
 Company/Equipment: IEPA Geoprobe Date Started: 8-4-97
 Operator/Geologist: M. Densmore / S. Johnson Date Finished: 8-4-97

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
421		0.0-1.0 <u>SILTY GRAVEL</u> , gray, c. gravel, loose, dry.	MC1	NA	63	5-10	Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs. Staining and greasy appearance in soil @ 1'-4'.
420		1.0-4.0 <u>SILTY CLAY</u> , dark gray, medium, moist.					
419							
418			MC2	NA	63	0	Soil sample SB14 (4-6) collected at 1450 for PCP and PAH (duplicate) analysis.
417		4.0-9.5 <u>SAND</u> , brown, vfn.-fn. sand, trace-little silt, loose, moist.					
416							
415			MC3	NA	50	0	Soil sample SB14 (12-14) collected at 1505 for PCP, PAH, and CLP analysis.
414							
413							
412			MC4	NA	50	0	Groundwater sample GP14-24 collected at 1545 for PCP and PAH analysis; groundwater sample GP14-40 collected at 1700 for PCP and PAH analysis.
411		9.5-12.6 <u>SANDY SILT</u> , brown, vfn.-fn. sand, trace clay, loose-medium, moist.					
410							
409							End of Boring @ 16.0' (probe advanced to 24' and 40' without soil sampling for a groundwater sample collection).
408		12.6-16.0 <u>SAND</u> , brown, vfn.-fn. sand, trace silt, loose-medium, moist-wet.					
407							
406							
405							
404							
403							



IEPA - Jennison-Wright

B-14

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CHTPRO

GEOPROBE LOG - LOCATION NO. SB15/GP15

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 422 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 8-4-97

Operator/Geologist: M. Densmore / S. Johnson

Date Finished: 8-4-97

gs. elevation 422 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
422			0.0-1.0 <u>SILTY GRAVEL</u> , dark gray, fn.-c. gravel, loose, dry.	MC1	NA	63	0	Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
421	1		1.0-4.6 <u>SANDY SILT</u> , brown, vfn. sand, loose-medium, moist.					
420	2							
419	3							
418	4			MC2	NA	75	0	Soil sample SB15 (6-7) collected at 1740 for PCP and PAH analysis.
417	5		4.6-8.0 <u>SAND</u> , brown, vfn.-fn. sand, trace silt, loose-medium, moist.					
416	6							
415	7							
414	8			MC3	NA	70	0	Soil sample SB15 (12-13) collected at 1755 for PCP and PAH analysis.
413	9		8.0-12.0 <u>SANDY SILT</u> , brown, vfn. sand, loose-medium, moist.					
412	10							
411	11							
410	12			MC4	NA	70	0	Groundwater sample GP15-24 collected at 1835 for PCP and PAH analysis.
409	13		12.0-16.0 <u>SAND</u> , brown, vfn.-fn. sand, trace-little silt, loose-medium, moist					
408	14							
407	15							
406	16		End of Boring @ 16.0' (probe advanced to 24' without soil sampling for a groundwater sample collection).					
405	17							
404	18							



IEPA - Jennison-Wright

B-15

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CHIPRO

GEOPROBE LOG - LOCATION NO. SB16/GP16

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 422 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 8-1-97

Operator/Geologist: M. Weber / S. Johnson

Date Finished: 8-1-97

gs elevation 422 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
422			0.0-1.5 <u>SAND/CLAY</u> , interbedded black fn. sand and black clay.					
421	1			MC1	NA	75	20-30	
420	2		1.5-4.0 <u>CLAY/SANDY SILT</u> , interbedded dark gray silty clay and dark gray vfn.-fn. sandy silt, medium, moist.					Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs. Oily sheen in soil @ 0-1.5'.
419	3							
418	4							
417	5		4.0-7.0 <u>SILTY SAND</u> , dark brown, vfn. sand, loose, moist.					
416	6			MC2	NA	100	10-15	
415	7							Soil sample SB16 (6-7) collected at 1315 for PCP and PAH analysis.
414	8		7.0-16.0 <u>SAND</u> , brown, vfn.-fn. sand, trace-little silt, 2"-3" clayey seams @ 13.5', loose, moist.					
413	9							
412	10			MC3	NA	75	2-3	
411	11							
410	12							
409	13							Soil sample SB16 (12-13) collected at 1330 for PCP and PAH analysis.
408	14			MC4	NA	75	0-1	
407	15							
406	16		End of Boring @ 16.0' (probe advanced to 24' without soil sampling for a groundwater sample collection).					Groundwater sample GP16-24 collected at 1415 for PCP and PAH (duplicate) analysis.
405	17							
404	18							



IEPA - Jennison-Wright

B-16

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CHIPRO

GEOPROBE LOG - LOCATION NO. SB17/GP17

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 422 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 8-5-97

Operator/Geologist: M. Densmore / S. Johnson

Date Finished: 8-5-97

GS Elevation 422 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
422			0.0-0.8 <u>SILT</u> , dark brown, little fn. gravel, loose, moist.					
421	1		0.8-14.7 <u>SAND</u> , brown, vfn. sand, little silt, loose-medium, moist.	MC1	NA	50	0	Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
420	2							
419	3							
418	4							
417	5			MC2	NA	75	0	Soil sample SB17 (5-7) collected at 0905 for PCP, PAH, and CLP analysis.
416	6							
415	7							
414	8							
413	9			MC3	NA	100	0	Soil sample SB17 (11-12) collected at 0915 for PCP and PAH analysis.
412	10							
411	11							
410	12							
409	13			MC4	NA	100	0	Groundwater sample GP17-24 collected at 1120 for PCP and PAH (duplicate) analysis; groundwater sample GP17-40 collected at 1305 for PCP and PAH analysis.
408	14							
407	15		14.7-16.0 <u>SANDY SILT</u> , brown, vfn. sand, trace clay, loose-medium, moist, wet @ 15.5'.					
406	16		End of Boring @ 16.0' (probe advanced to 24' and 40' without soil sampling for a groundwater sample collection).					
405	17							
404	18							



IEPA - Jennison-Wright

B-17

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CHIPRO

GEOPROBE LOG - LOCATION NO. SB18/GP18

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 422 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 8-5-97

Operator/Geologist: M. Densmore / S. Johnson

Date Finished: 8-5-97

GS Elevation 422 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
422			0.0-1.0 <u>SILTY GRAVEL</u> , dark brown, fn.-c. gravel, loose, moist.					Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
421	1		1.0-4.0 <u>SANDY SILT</u> , brown, vfn. sand, medium, moist.	MC1	NA	75	0	
420	2							
419	3							Soil sample SB18 (5-7) collected at 1315 for PCP, PAH, and CLP (duplicate) analysis.
418	4		4.0-8.0 <u>SANDY SILT/CLAYEY SILT</u> , interbedded brown vfn. sandy silt and brown clayey silt, loose-medium, moist.	MC2	NA	88	0	
417	5							
416	6							Soil sample SB18 (11-12) collected at 1325 for PCP and PAH analysis.
415	7							
414	8		8.0-16.0 <u>SAND</u> , brown, vfn.-fn. sand, trace silt, trace clay @14.5', loose-medium, moist, wet @ 15.5'.	MC3	NA	100	0	
413	9							Groundwater sample GP18-24 collected at 1450 for PCP, PAH, and CLP (duplicate) analysis; groundwater sample GP18-40 collected at 1925 for PCP and PAH analysis.
412	10							
411	11							
410	12							
409	13							
408	14			MC4	NA	93	0	
407	15							
406	16		End of Boring @ 16.0' (probe advanced to 24' and 40' without soil sampling for a groundwater sample collection).					
405	17							
404	18							



IEPA - Jennison-Wright

B-18

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CHIPRO

GEOPROBE LOG – LOCATION NO. SB19/GP19

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois Total Depth of Hole (feet BGS): 16
 Geoprobe Location: _____ Ground Elevation (feet above MSL): 422 (approx.)
 Refusal at (feet BGS): NA
 Company/Equipment: IEPA Geoprobe Date Started: 8-1-97
 Operator/Geologist: M. Weber / S. Johnson Date Finished: 8-1-97

gs elevation 422 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
422			0.0-2.0 <u>SANDY SILT</u> , dark brown, vfn.-fn. sand, trace clay, medium, moist.					Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
421	1			MC1	NA	63	0	
420	2		2.0-12.0 <u>SAND</u> , brown, vfn.-fn. sand, trace-little silt, 1' silty clay seam @ 9.5', loose, moist.					Soil sample SB19 (5-7) collected at 1100 for PCP, PAH, and CLP analysis.
419	3							
418	4			MC2	NA	100	0	
417	5							
416	6							Soil sample SB19 (11-12) collected at 1110 for PCP and PAH analysis.
415	7							
414	8			MC3	NA	100	0	
413	9							
412	10							Groundwater sample GP19-24 collected at 1200 for PCP and PAH analysis.
411	11							
410	12		12.0-16.0 <u>SAND</u> , brown, vfn.-fn. sand, loose, moist.					
409	13			MC4	NA	75	0	
408	14							
407	15							
406	16		End of Boring @ 16.0' (probe advanced to 24' without soil sampling for a groundwater sample collection).					
405	17							
404	18							



IEPA – Jennison-Wright

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CHIPRO

GEOPROBE LOG – LOCATION NO. SB20/GP20

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 417 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 7-30-97

Operator/Geologist: M. Weber / S. Johnson

Date Finished: 7-30-97

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
417		0.0-1.0 <u>GRAVEL</u> , black, c. gravel, cinders, slag, some silt, loose, dry.					
416		1.0-7.0 <u>SILTY CLAY</u> , dark gray, brown @ 2.7' with little gray mottling, medium, moist.	MC1	NA	100	0	Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
415							
414							
413							
412			MC2	NA	100	0	Soil sample SB20 (6-7) collected at 1030 for PCP and PAH analysis.
411							
410		7.0-16.0 <u>SAND</u> , brown, vfn.-fn. sand, loose, moist, wet @ 14.5'.					
409							
408							
407			MC3	NA	100	0	Soil sample SB20 (10-12) collected at 1040 for PCP, PAH, and CLP analysis.
406							
405							
404							
403			MC4	NA	88	0	
402							
401							
400		End of Boring @ 16.0' (probe advanced to 45' without soil sampling for a groundwater sample collection).					Groundwater sample GP20-45 collected at 1200 for PCP and PAH analysis.
399							



IEPA – Jennison-Wright

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CHIPRO

GEOPROBE LOG - LOCATION NO. SB21

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 418 (approx.)

Company/Equipment: IEPA Geoprobe

Refusal at (feet BGS): NA

Operator/Geologist: M. Weber / S. Johnson

Date Started: 7-28-97

Date Finished: 7-28-97

gs elevation 418 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
418			0.0-0.5 <u>GRAVEL</u> , dark brown/black, c. gravel, cinders, slag, very loose, dry.					
417	1		0.5-6.0 <u>SILTY CLAY</u> , dark gray, little dark brown mottling @ 3', dark brown/brown @ 4', stiff, moist.	MC1	NA	100	0	Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
416	2							
415	3							
414	4							
413	5							
412	6		6.0-9.0 <u>SAND</u> , brown, vfn.-fn. sand, trace silt, micaceous, loose, moist.	MC2	NA	100	0	Soil sample SB21 (6-8) collected at 1350 for PCP and PAH analysis.
411	7							
410	8							
409	9		9.0-15.0 <u>SANDY SILT</u> , brown, vfn. sand, 8" gray silty clay seam @ 13.5', medium, moist-wet.	MC3	NA	100	0	
408	10							
407	11							Soil sample SB21 (11-12) collected at 1405 for PCP and PAH analysis.
406	12							
405	13							
404	14			MC4	NA	88	0	
403	15		15.0-16.0 <u>SAND</u> , brown, vfn.-fn. sand, medium, moist, wet @ 15.5'.					
402	16		End of Boring @ 16.0'.					
401	17							
400	18							



IEPA - Jennison-Wright

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CHIPRO

GEOPROBE LOG - LOCATION NO. SB22

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 420 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 7-29-97

Operator/Geologist: M. Weber / S. Johnson

Date Finished: 7-29-97

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
420		0.0-1.0 GRAVEL, dark brown/black, c. gravel, cinders, slag, loose, dry.					
419 1		1.0-16.0 SAND, brown, vfn.-fn. sand, little silt, loose, moist, wet @ 14'.	MC1	NA	73	0	Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
418 2							
417 3							
416 4							
415 5							
414 6			MC2	NA	75	0	Soil sample SB22 (6-7) collected at 1215 for PCP and PAH analysis.
413 7							
412 8							
411 9							
410 10			MC3	NA	63	0	
409 11							
408 12							
407 13							Soil sample SB22 (12-13) collected at 1240 for PCP and PAH analysis.
406 14			MC4	NA	50	0	
405 15							
404 16		End of Boring @ 16.0'.					
403 17							
402 18							



IEPA - Jennison-Wright

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CHIPRO

GEOPROBE LOG – LOCATION NO. SB23

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 419 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 7-29-97

Operator/Geologist: M. Weber / S. Johnson

Date Finished: 7-29-97

gs. elevation 419 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
419			0.0–1.5 <u>GRAVEL</u> , black, c. gravel, cinders, slag, loose, dry.					Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
418	1							
417	2		1.5–5.0 <u>SILTY CLAY</u> , dark gray, little brown mottling @ 2.5', brown @ 3.3' with some dark gray and reddish brown mottling, medium, dry-moist.	MC1	NA	100	0	
416	3							
415	4							
414	5		5.0–16.0 <u>SAND</u> , brown, vfn.-fn. sand, trace-little silt @ 5'–6.3', loose, moist.	MC2	NA	100	0	
413	6							Soil sample SB23 (6–8) collected at 1115 for PCP, PAH, and CLP analysis.
412	7							
411	8							
410	9							
409	10			MC3	NA	100	0	
408	11							
407	12							Soil sample SB23 (11–12) collected at 1125 for PCP and PAH analysis.
406	13							
405	14			MC4	NA	100	0	
404	15							
403	16		End of Boring @ 16.0'.					
402	17							
401	18							



IEPA – Jennison-Wright

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CHIPRO

GEOPROBE LOG - LOCATION NO. SB24

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois Total Depth of Hole (feet BGS): 16
 Geoprobe Location: _____ Ground Elevation (feet above MSL): 419 (approx.)
 Refusal at (feet BGS): NA
 Company/Equipment: IEPA Geoprobe Date Started: 7-29-97
 Operator/Geologist: M. Weber / S. Johnson Date Finished: 7-29-97

gs. elevation 419 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
419			0.0-1.8 <u>GRAVEL</u> , black, c. gravel, cinders, slag, loose, dry.					Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
418	1			MC1	NA	60	0	
417	2		1.8-4.0 <u>SILTY CLAY</u> , dark gray, brown @ 2' with some fn. sand, medium, moist.					
416	3							Soil sample SB24 (6-7) collected at 1420 for PCP and PAH analysis.
415	4		4.0-5.2 <u>SILTY SAND</u> , brown, fn. sand, loose-medium, moist.					
414	5							
413	6		5.2-6.8 <u>SAND</u> , brown, vfn.-fn. sand, loose-medium, moist-wet.	MC2	NA	100	0	
412	7		6.8-11.0 <u>SILTY CLAY</u> , brown, trace gray mottling, medium, moist.					
411	8							Soil sample SB24 (12-13) collected at 1440 for PCP and PAH analysis.
410	9							
409	10			MC3	NA	75	0	
408	11		11.0-16.0 <u>SAND</u> , brown, vfn.-fn. sand, loose-medium, moist-wet.					
407	12							
406	13							End of Boring @ 16.0'.
405	14			MC4	NA	75	0	
404	15							
403	16							
402	17							
401	18							



IEPA - Jennison-Wright

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CHIPRO

GEOPROBE LOG - LOCATION NO. SB25

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 419 (approx.)

Refusal at (feet BGS): NA

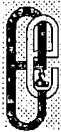
Company/Equipment: IEPA Geoprobe

Date Started: 7-29-97

Operator/Geologist: M. Weber / S. Johnson

Date Finished: 7-29-97

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
419		0.0-1.7 <u>SILTY GRAVEL</u> , light brownish-gray, dark gray/black @ 1' with cinders, slag, loose, dry.					Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
418							
417		1.7-6.8 <u>SILTY CLAY</u> , dark gray, medium, moist.	MC1	NA	63	0	
416							
415							
414							
413			MC2	NA	75	0	Soil sample SB25 (5.5-6.5) collected at 1320 for PCP and PAH (duplicate) analysis.
412		6.8-16.0 <u>SAND</u> , brown, vfn.-fn. sand, loose, moist.					
411							
410							
409			MC3	NA	75	0	
408							
407							
406							
405			MC4	NA	63	0	Soil sample SB25 (12-14) collected at 1340 for PCP, PAH, and CLP analysis.
404							
403		End of Boring @ 16.0'.					
402							
401							



IEPA - Jennison-Wright

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CHIPRO

GEOPROBE LOG - LOCATION NO. SB26

Page 1 of 2

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 20

Geoprobe Location: _____

Ground Elevation (feet above MSL): 421 (approx.)

Company/Equipment: IEPA Geoprobe

Refusal at (feet BGS): NA

Operator/Geologist: M. Weber / S. Johnson

Date Started: 7-29-97

Date Finished: 7-29-97

gs elevation 421 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] P-ID	COMMENTS
421			0.0-1.0 <u>SILT</u> , dark brown, some fn.-c. gravel, loose, dry.					Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
420	1		1.0-4.0 <u>SANDY CLAY/SAND</u> , interbedded dark gray/black fn. sandy clay and dark gray/black fn. sand, loose-medium, moist-wet.	MC1	NA	75	1-3	
419	2							
418	3							
417	4		4.0-11.4 <u>SILTY CLAY</u> , dark gray, medium, moist-wet.					Soil sample SB26 (6-8) collected at 1515 for PCP and PAH analysis.
416	5			MC2	NA	100	30	
415	6							
414	7							
413	8							Soil sample SB26 (11-12) collected at 1525 for PCP and PAH analysis.
412	9			MC3	NA	100	50	
411	10							
410	11							
409	12		11.4-12.0 <u>CLAYEY SILT</u> , dark gray, medium, moist-wet.					
408	13		12.0-20.0 <u>SANDY CLAY/SAND</u> , interbedded gray/black fn. sandy clay and gray/black fn. sand, medium, moist-wet.	MC4	NA	100	40	
407	14							
406	15							
405	16							
404	17			MC5	NA	100	30	
403	18							



IEPA - Jennison-Wright

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GEOPROBE LOG - LOCATION NO. SB26

Page 2 of 2

Project: Granite City, Illinois

Total Depth of Hole (feet BGS): 20

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
403							
402 19			MC5	NA	100	30	
401 20		End of Boring @ 20.0'.					
400 21							
399 22							
398 23							
397 24							
396 25							
395 26							
394 27							
393 28							
392 29							
391 30							
390 31							
389 32							
388 33							
387 34							
386 35							
385 36							
384 37							
383 38							
382 39							



IEPA - Jennison-Wright

B-27

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CHIPRO

GEOPROBE LOG – LOCATION NO. SB27

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 421 (approx.)

Refusal at (feet BGS): NA

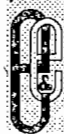
Company/Equipment: IEPA Geoprobe

Date Started: 7-29-97

Operator/Geologist: M. Weber / S. Johnson

Date Finished: 7-29-97

gs elevation 421 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings: [MU] PID	COMMENTS
421			0.0-1.2 <u>SILTY SAND AND GRAVEL</u> , dark brown, fn. sand, fn.-c. gravel, cinders, slag, loose, dry.					Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
420	1		1.2-4.0 <u>SAND</u> , dark brown, fn. sand, trace clay, loose-medium, moist.	MC1	NA	75	0	
419	2							
418	3							Soil sample SB27 (5-6) collected at 1630 for PCP and PAH analysis.
417	4		4.0-14.4 <u>SILTY CLAY</u> , dark gray, brown @ 8.7', medium-stiff, moist.					
416	5			MC2	NA	50	3-6	
415	6							
414	7							Soil sample SB27 (12-13) collected at 1640 for PCP and PAH analysis.
413	8							
412	9			MC3	NA	25	0	
411	10							
410	11							
409	12							
408	13			MC4	NA	63	0	
407	14		14.4-16.0 <u>SAND</u> , brown, vfn.-fn. sand, medium, wet.					
406	15							
405	16		End of Boring @ 16.0'.					
404	17							
403	18							



IEPA – Jennison-Wright

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GEOPROBE LOG – LOCATION NO. SB28

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 422 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 7-30-97

Operator/Geologist: M. Weber / S. Johnson

Date Finished: 7-30-97

gs elevation 422 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
422			0.0-1.0 <u>SILTY GRAVEL</u> , dark gray/black, c. gravel, cinders, slag, loose, dry.					
421	1		1.0-16.0 <u>SILTY SAND</u> , brown, vfn.-fn. sand, some clay @ 12.5'-13.3', medium, moist, wet @ 15'.	MC1	NA	63	0	Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
420	2							
419	3							
418	4							
417	5			MC2	NA	75	0	Soil sample SB28 (6-7) collected at 0900 for PCP and PAH analysis.
416	6							
415	7							
414	8							
413	9			MC3	NA	68	0	
412	10							
411	11							
410	12							Soil sample SB28 (12-14) collected at 0920 for PCP and PAH (duplicate) analysis.
409	13							
408	14			MC4	NA	75	0	
407	15							
406	16		End of Boring @ 16.0'.					
405	17							
404	18							



IEPA – Jennison-Wright

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CHIPRO

GEOPROBE LOG - LOCATION NO. SB29

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 421 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 7-30-97

Operator/Geologist: M. Weber / S. Johnson

Date Finished: 7-30-97

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
421		0.0-1.0 <u>SILTY GRAVEL</u> , dark gray/black, c. gravel, cinders, slag, loose, dry.					Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
420	1	1.0-4.7 <u>SILTY CLAY</u> , dark brown, medium-stiff, dry-moist.	MC1	NA	75	0	
419	2						
418	3						
417	4						Soil sample SB29 (5-7) collected at 0810 for PCP, PAH, and CLP analysis.
416	5	4.7-8.0 <u>SILTY SAND</u> , brown, vfn.-fn. sand, loose-medium, moist.	MC2	NA	88	0	
415	6						
414	7						
413	8	8.0-13.7 <u>SILTY SAND/SAND</u> , interbedded brown silty sand and brown vfn.-fn. sand, loose-medium, moist.	MC3	NA	50	0	Soil sample SB29 (12-13) collected at 0825 for PCP and PAH analysis.
412	9						
411	10						
410	11						
409	12						
408	13						
407	14	13.7-16.0 <u>SAND</u> , brown, vfn.-fn. sand, medium, moist, wet @ 15.5'.	MC4	NA	88	0	
406	15						
405	16	End of Boring @ 16.0'.					
404	17						
403	18						



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GEOPROBE LOG – LOCATION NO. SB30

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 16

Geoprobe Location: _____

Ground Elevation (feet above MSL): 417 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: IEPA Geoprobe

Date Started: 7-29-97

Operator/Geologist: M. Weber / S. Johnson

Date Finished: 7-29-97

gs elevation 417 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
417			0.0–1.5 <u>GRAVEL</u> , black, c. gravel, cinders, glass, slag, loose, dry.					Sampling performed using Geoprobe. All samples collected using a 2-inch diameter sampler and 4-foot sample runs.
416	1			MC1	NA	75	0	
415	2		1.5–6.0 <u>SILTY CLAY</u> , dark gray, brown @ 2.8', little fn.-m. sand @ 4', medium, moist.					
414	3							
413	4							
412	5							
411	6		6.0–16.0 <u>SAND</u> , brown, vfn.-fn. sand, trace silt, micaceous, loose, moist, wet @ 14'.	MC2	NA	100	0	Soil sample SB30 (6–8) collected at 1030 for PCP and PAH analysis.
410	7							
409	8							
408	9							
407	10			MC3	NA	100	0	
406	11							
405	12							Soil sample SB30 (11–12) collected at 1040 for PCP and PAH analysis.
404	13							
403	14			MC4	NA	63	0	
402	15							
401	16		End of Boring @ 16.0'.					
400	17							
399	18							



IEPA – Jennison-Wright

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GEOPROBE LOG – LOCATION NO. SB31

Page 1 of 1

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 15'

Geoprobe Location: Area H

Ground Elevation (feet above MSL): 416 (approx.)

Refusal at (feet BGS): NA

Company/Equipment: Layne-Western

Date Started: 8-11-97

Operator/Geologist: Tim Elders / Sherri Johnson

Date Finished: 8-11-97

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
416							
415		0.0-1.0 <u>GRAVEL</u> , gray, c. gravel, cobbles, cinders, slag, loose, dry.					
414		1.0-1.5 <u>SILT</u> , very dark brown, some fn. sand, glass, wood, medium, moist.					
413		1.5-5.0 <u>SAND</u> , brown, vfn.-fn. sand, trace silt, loose-medium, moist.	SS1	NA	40	0	Drilling conducted using a CME-75 drill rig equipped with 4-1/4" I.D. hollow stem augers. Soil samples collected with a 5' CME sampler.
412							
411		5.0-15.0 <u>SAND</u> , brown, vfn.-fn. sand, medium, moist, water @ 13.5' (perched).					
410			SS2	NA	100	0	2' sample run from 5'-7'.
409							
408			SS3	NA	100	0	3' sample run from 7'-10'.
407							
406							
405							
404			SS4	NA	80	0	Soil sample SB31 (12-13) collected at 1400 for CLP analysis.
403							
402							
401		End of Boring @ 15.0'.					
400							
399							
398							



GEOPROBE LOG - LOCATION NO. SB32

Page 1 of 2

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 20

Geoprobe Location: Area G

Ground Elevation (feet above MSL): 422 (approx.)

Company/Equipment: Layne-Western

Refusal at (feet BGS): NA

Date Started: 8-11-97

Operator/Geologist: Tim Elders / Sherri Johnson

Date Finished: 8-11-97

gs elevation 422 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS	
422			0.0-1.0 <u>SILT</u> , very dark brown, some fn. sand, loose, moist.	SS1	NA	75	20	Drilling conducted using a CME-75 drill rig equipped with 4-1/4" I.D. hollow stem augers. Soil samples collected with a 5' CME sampler.	
421	1		1.0-5.0 <u>GRAVEL</u> , gray, c. gravel, concrete, cinders, glass, medium, moist.						
420	2								
419	3								
418	4								
417	5		5.0-8.0 <u>SILTY CLAY</u> , black, glass, medium, moist.	SS2	NA	80	40-50	Concrete rubble does not allow for sample collection from 2'-5', subsurface logged from cuttings. Resume use of 5' CME sampler @ 5'.	
416	6								
415	7								
414	8		8.0-11.0 <u>SAND</u> , black, vfn.-fn. sand, little-some silt, dark grayish-brown @ 10', medium, moist.	SS3	NA	84	20-50	Soil sample SB32 (6-7) collected at 1515 for biologic parameters. Soil is stained and has oily sheen from 5'-11'. Soil sample SB32 (8-10) collected at 1520 for CLP (duplicate), TCLP, and disposal parameter analysis.	
413	9								
412	10								
411	11		11.0-12.7 <u>CLAYEY SILT</u> , greenish-brown, little fn. sand, medium, moist.						
410	12		12.7-20.0 <u>SAND</u> , dark brown, fn.-m. sand, little silt, medium, moist, wet @ 18'.	SS4	NA	74	20		
409	13								
408	14								
407	15								
406	16								
405	17								
404	18								



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CHPRO

GEOPROBE LOG - LOCATION NO. SB32

Page 2 of 2

Project: Granite City, Illinois

Total Depth of Hole (feet BGS): 20

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
404							
403 19			SS4	NA	74	20	
402 20		End of Boring @ 20.0'.					
401 21							
400 22							
399 23							
398 24							
397 25							
396 26							
395 27							
394 28							
393 29							
392 30							
391 31							
390 32							
389 33							
388 34							
387 35							
386 36							
385 37							
384 38							
383 39							



IEPA - Jennison-Wright

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GEOPROBE LOG - LOCATION NO. SB33

Page 1 of 2

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 23

Geoprobe Location: Area B

Ground Elevation (feet above MSL): 420 (approx.)

Company/Equipment: Layne-Western

Refusal at (feet BGS): NA

Operator/Geologist: Tim Elders / Sherri Johnson

Date Started: 8-12-97

Date Finished: 8-12-97

gs elevation 420 feet	DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
420			0.0-0.6 <u>SILT</u> , brown, little fn. sand, trace fn. gravel, loose, dry.	SS1	NA	66	0	Drilling conducted using a CME-75 drill rig equipped with 4-1/4" I.D. hollow stem augers. Soil samples collected with a 5' CME sampler advanced at a 30-degree angle (from vertical).
419	1		0.6-4.4 <u>SILT</u> , yellowish-brown, little fn. gravel, some c. gravel, dense, dry.					
418	2							
417	3							Soil staining from 4.4'-8'. Soil sample SB33 (6-8) collected at 0930 for CLP analysis.
416	4		4.4-6.9 <u>SILT</u> , dark gray, little fn. sand, little clay, clayey silt @ 5.5', medium, moist.	SS2	NA	100	5-15	
415	5							
414	6							Soil sample SB33 (12-13) collected at 0930 for biologic parameters.
413	7		6.9-7.5 <u>SILTY CLAY</u> , dark gray, medium, moist.					
412	8		7.5-9.0 <u>SILT</u> , little clay and fn. sand, medium, moist.					
411	9							Soil staining from 13'-23', visible product in sand beds.
410	10		9.0-13.0 <u>SAND</u> , brownish-gray, vfn.-fn. sand, little silt, no silt @ 10.2', loose-medium, moist.	SS3	NA	60	5-10	
409	11							
408	12							Soil staining from 13'-23', visible product in sand beds.
407	13		13.0-23.0 <u>SAND/CLAYEY SILT</u> , interbedded brownish-gray sand and greenish-gray clayey silt, medium, moist-wet.	SS4	NA	100	5-10	
406	14							
405	15							
404	16							
403	17							
402	18							



IEPA - Jennison-Wright

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GEOPROBE LOG - LOCATION NO. SB33

Page 2 of 2

Project: Granite City, Illinois

Total Depth of Hole (feet BGS): 23

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
402							
401 19							
400 20							
399 21			SS5	NA	100	5-15	
398 22							
397 23		End of Boring @ 23.0'					
396 24							
395 25							
394 26							
393 27							
392 28							
391 29							
390 30							
389 31							
388 32							
387 33							
386 34							
385 35							
384 36							
383 37							
382 38							
381 39							



IEPA - Jennison-Wright

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GEOPROBE LOG - LOCATION NO. SB34

Page 1 of 2

Site / Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 23

Geoprobe Location: Area E

Ground Elevation (feet above MSL): 422 (approx.)

Company/Equipment: Layne-Western

Refusal at (feet BGS): NA

Operator/Geologist: Tim Elders / Sherri Johnson

Date Started: 8-12-97

Date Finished: 8-12-97

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
422		0.0-2.0 <u>SILT</u> , dark brown, some fn.-m. sand, trace fn. gravel, loose-medium, moist.	SSI	NA	100	0	Drilling conducted using a CME-75 drill rig equipped with 4-1/4" I.D. hollow stem augers. Soil samples collected with a 5' CME sampler advanced at a 35-degree angle (from vertical).
421							
420		2.0-2.3 <u>SANDY SILT</u> , brown, vfn. sand, loose-medium, moist.					
419		2.3-5.7 <u>SAND</u> , brown, vfn.-fn. sand, little silt, loose-medium, moist.					
418			SS2	NA	60	0	
417							
416		5.7-8.0 <u>SANDY SILT</u> , brown, vfn. sand, loose-medium, moist.					
415							
414		8.0-13.0 <u>SAND</u> , brown, vfn.-fn. sand, trace-little silt, occasional 2"-3" sandy silt seams, some 1/4"-1/2" oxidation banding, medium, moist	SS3	NA	80	0	
413							
412							
411							
410							Soil sample SB34 (16-17) collected at 1200 for CLP analysis.
409		13.0-18.0 <u>SAND</u> , brown, vfn.-fn. sand, trace black organic blebs, loose-medium, moist.	SS4	NA	80	0	
408							
407							
406							
405							
404							



IEPA - Jennison-Wright

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CHIPRO

GEOPROBE LOG – LOCATION NO. SB34

Page 2 of 2

Project: Granite City, Illinois

Total Depth of Hole (feet BGS): 23

DEPTH	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	SAMPLE RUN NO. SAMPLE INTERVAL	BLOW COUNT	% RECOVERY	Head Space Readings [MU] PID	COMMENTS
404							
403 19		18.0–23.0 SAND, brown, vfn.–fn. sand, little–some silt, some 1/4"–1/2" oxidation banding, grayish–brown @ 22.2', medium, moist, wet @ 18'.	SS5	NA	92	0	
402 20							
401 21							
400 22							
399 23		End of Boring @ 23.0'.					
398 24							
397 25							
396 26							
395 27							
394 28							
393 29							
392 30							
391 31							
390 32							
389 33							
388 34							
387 35							
386 36							
385 37							
384 38							
383 39							



IEPA – Jennison–Wright

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CHIPRO

C

Monitoring Well Boring and Construction Diagrams

DRILLING LOG OF WELL NO. MW5D

Page 1 of 6

Project/Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 113.5

Boring Location: _____

Ground Elevation (feet above MSL): 421.39

Inner casing elevation (ft. above MSL): 423.18

Date Started/Finished: 8-20-97 / 8-26-97

Groundwater Depth (feet BGS): _____

Drilling Company: Layne-Western

During Drilling: 18

Driller/Geologist: Tim Elders / Bill Schaefer

After development: 18

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
gs elevation 421.39 ft.			ground surface (gs)					
1	Concrete		0.0-2.5 <u>SLAG</u> , dry.					Drilling conducted using an IR TH60 air rotary drill rig equipped for dual-tube reverse circulation drilling with 6-1/2" O.D. overshot casing.
2			2.0-17.0 <u>CLAY</u> , gray, moist.					
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								



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C-2

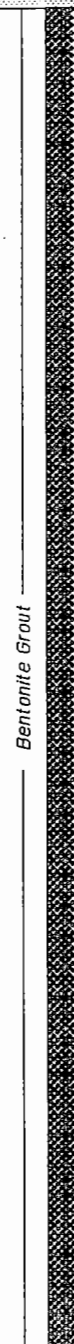
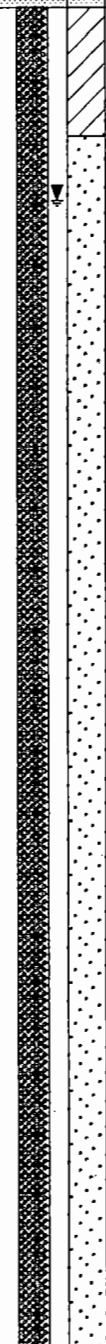
chiwell2

DRILLING LOG OF WELL NO. MW5D

Page 2 of 6

Project: Jennison-Wright

Total Depth of Hole (feet BGS): 113.5

ELEVATION	DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER	SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS	
405	16			17.0-27.0 <u>SAND</u> , vfn. sand, wet.	DT1		NA	NA	0	Soil has oily sheen from 13'-22'. Soil has visible product from 22'-27'.	
	17										
	18										
	19										
	20										
400	21										
	22										
	23										
	24										
	25										
395	26			27.0-57.0 <u>SAND AND GRAVEL</u> , fn. sand, fn. gravel, wet.	DT2		NA	NA	0		
	27										
	28										
	29										
	30										
390	31										
	32										
	33										
	34										
	35										
	36										



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chiwell2

DRILLING LOG OF WELL NO. MW5D

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Project: Jennison-Wright

Total Depth of Hole (feet BGS): 113.5

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
385				DT2	NA	NA	0	Soil has oily sheen from 27'-47'.
37								
38								
39								
40								
41								
380								
42								
43								
44								
45								
46								
375				DT3	NA	NA	0	
47								
48								
49								
50								
51								
370								
52								
53								
54								
55								
56								
365								
57								



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DRILLING LOG OF WELL NO. MW5D

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Project: Jennison-Wright

Total Depth of Hole (feet BGS): 113.5

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
58			57.0-67.0 <u>SAND</u> , fn. sand, wet.					Soil has visible product from 47'-77'; decreasing quantity from 67'-77'.
59								
60								
61								
62								
63								
64								
65								
66								
67			67.0-113.5 <u>SAND AND GRAVEL</u> , c. sand, c. gravel, wet.	DT4	NA	NA	0	
68								
69								
70								
71								
72								
73								
74								
75								
76								
77				DT5	NA	NA	0	
78								



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chitwell2

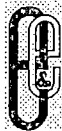
DRILLING LOG OF WELL NO. MW5D

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Project: Jennison-Wright

Total Depth of Hole (feet BGS): 113.5

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
79								
80								
81								
340								
82								
83								
84								
85								
86								
335								
87				DT5	NA	NA	0	
88								
89								
90								Soil has oily sheen from 77'-102'.
91								
330								
92								
93								
94								
95								
96								
325								
97								
98				DT6	NA	NA	0	
99								



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chiwell2

DRILLING LOG OF WELL NO. MW5D

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Project: Jennison-Wright

Total Depth of Hole (feet BGS): 113.5

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
100				DT6	NA	NA	0	<p>Soil has visible product @ 102'; heavily stained to bedrock.</p> <p>Soil sample MW5D-108 collected for grain size analysis.</p> <p>Base of well pulled up to 110.5' during overshot casing extraction.</p>
101								
102								
103								
104								
105								
106								
107								
108								
109								
110								
111								
112								
113								
114			BEDROCK, limestone, grayish-white, cherty, unweathered. End of Boring @ 113.5'.					
115								
116								
117								
118								
119								
120								



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DRILLING LOG OF WELL NO. MW8S

Page 1 of 2

Project/Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 25

Boring Location:

Ground Elevation (feet above MSL): 422.51

Inner casing elevation (ft. above MSL): 424.50

Date Started/Finished: 8-13-97 / 8-13-97

Groundwater Depth (feet BGS):

Drilling Company: Layne-Western

During Drilling: 18

Driller/Geologist: Tim Elders / Sherri Johnson

After development: 18.3

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
gs elevation 422.51 ft.			ground surface (gs)					
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Concrete Bentonite Grout Sand Pack		0.0-5.0 SAND, dark brown, fn.-c. sand, some fn.-c. gravel, cinders, slag, wood, loose-medium, dry.	SSI	NA	24	0	Drilling conducted using a CME-75 drill rig equipped with 4-1/4" I.D. hollow stem augers. Soil samples from 0-18' collected with a 5' CME sampler; soil samples from 18'-22' collected with a 2" I.D. split-spoon sampler.
			5.0-8.1 SAND, brown, vfn.-fn. sand, little-some silt, loose-medium, moist.	SS2	NA	48	0	Soil sample MW8S-5 collected at 0840 for semivolatiles analysis.
			8.1-10.0 SANDY SILT, brown, vfn.-fn. sand, loose-medium, moist.					
			10.0-12.0 SILTY SAND, brown, vfn.-fn. sand, medium, moist.					Soil sample MW8S-10 collected at 0900 for semivolatiles and pH analysis.
			12.0-13.6 SILT, brown, some fn. sand, some 1/4" oxidation banding, gray, clayey silt @ 13', medium, moist-wet.	SS3	NA	58	10	
			13.6-15.8 SANDY SILT, gray, vfn.-fn. sand, medium, moist.					



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DRILLING LOG OF WELL NO. MW8S

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Project: Jennison-Wright

Total Depth of Hole (feet BGS): 25

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
16			15.8-25.0 SAND, gray, vfn.-fn. sand, trace silt, medium, moist-wet, wet @ 18'.	SS4	NA	30	5	Soil sample MW8S-15 collected at 0905 for semivolatile (duplicate) analysis. 3' sample run from 15'-18'.
17								
18								
19				SS5	NA	14	0	Soil sample MW8S-20 collected at 0915 for semivolatile, grain size, and TOC analysis.
20								
21				SS6	NA	19	0	
22			End of Boring @ 25.0'.					
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								
36								



IEPA - Jennison-Wright

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chiwell2

DRILLING LOG OF WELL NO. MW8M

Page 1 of 3

Project/Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 57

Boring Location: _____

Ground Elevation (feet above MSL): 421.40

Inner casing elevation (ft. above MSL): 423.38

Date Started/Finished: 8-18-97 / 8-20-97

Groundwater Depth (feet BGS): _____

Drilling Company: Layne-Western

During Drilling: 17

Driller/Geologist: Tim Elders / Sherri Johnson

After development: 17.2

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
gs elevation 421.40 ft.			ground surface (gs)					
420			0.0-2.0 <u>CLAYEY GRAVEL</u> , gray, c. gravel, dry.					Drilling conducted using an IR TH60 air rotary drill rig equipped for dual-tube reverse circulation drilling with 6-1/2" O.D. overshot casing. Soil has oily sheen from 4'-27'.
2			2.0-4.0 <u>CLAY</u> , brown, moist.					
3			4.0-27.0 <u>SAND</u> , brownish-gray, vfn.-fn. sand, trace silt, gray @ 15', moist, wet @ 17'.					
4								
5								
6								
415								
7								
8								
9								
10								
11								
410								
12								
13								
14								
15								







DRILLING LOG OF WELL NO. MW8M

Page 2 of 3

Project: Jennison-Wright

Total Depth of Hole (feet BGS): 57

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
16 405				DT1	NA	NA	0	
17								
18								
19								
20								
21								
22								
23								
24								
25								
26 395				DT2	NA	NA	0	
27			27.0-28.0 <u>CLAY</u> , gray, moist-wet.					
28			28.0-34.0 <u>SAND</u> , brownish-gray, vfn.-fn. sand, lignite fragments, wet.					
29								
30								
31 390								
32								
33								
34								
35								
36			34.0-51.0 <u>SAND</u> , gray, fn.-c. sand, little fn. gravel, brownish-gray @ 41', wet.					



DRILLING LOG OF WELL NO. MW8D

Page 1 of 6

Project/Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 117

Boring Location:

Ground Elevation (feet above MSL): 422.72

Inner casing elevation (ft. above MSL): 424.65

Date Started/Finished: 8-15-97 / 8-16-97

Groundwater Depth (feet BGS):

Drilling Company: Layne-Western

During Drilling: 18

Driller/Geologist: Tim Elders / Sherri Johnson

After development: 17.9

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
gs elevation 422.72 ft.			ground surface (gs)					
1	Concrete		0.0-2.0 GRAVEL, black, c. gravel, cinders, slag, dry.					Drilling conducted using an IR TH60 air rotary drill rig equipped for dual-tube reverse circulation drilling with 6-1/2" O.D. overshot casing.
2			2.0-13.0 SAND, brown, vfn.-fn. sand, trace-little silt, trace fn. gravel, moist.					
3								
4								
5								
6								
7								
8	Bentonite Grout			DT1	NA	NA	0	
9								
10								
11								
12								
13			13.0-15.0 CLAY, brown, trace fn. gravel, moist.					
14								
15								



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chiwell2

DRILLING LOG OF WELL NO. MW8D

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Project: Jennison-Wright

Total Depth of Hole (feet BGS): 117

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
16			15.0-37.0 <u>SAND</u> , brown, vfn.-fn. sand, trace fn.-c. gravel, little m. sand, moist, wet @ 18'.	DT1	NA	NA	0	
17								
18								
19								
20								
21								
22								
23								
24								
25								
26			37.0-52.0 <u>SAND AND GRAVEL</u> , grayish-brown, fn.-c. sand, fn. gravel, lignite fragments, wet.	DT2	NA	NA	0	
27								
28								
29								
30								
31								
32								
33								
34								
35								
36								



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chlwell2

DRILLING LOG OF WELL NO. MW8D

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Project: Jennison-Wright

Total Depth of Hole (feet BGS): 117

ELEVATION	DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER	SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/PID (ppm)	COMMENTS
					DT2		NA	NA	0	
37										
385	38									
	39									
	40									
	41									
	42									
380	43									
	44									
	45									
	46									
	47				DT3		NA	NA	0	
375	48									
	49									
	50									
	51									
	52			52.0-63.0 SAND, gray, fn.-m. sand, little-some fn. gravel, wet.						
370	53									
	54									
	55									
	56									
	57									



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chivell2

DRILLING LOG OF WELL NO. MW8D

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Project: Jennison-Wright

Total Depth of Hole (feet BGS): 117

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
365 58	<i>Bentonite Grout</i>			DT4	NA	NA	0	
59								
60								
61								
62								
360 63								
64								
65								
66								
67								
355 68	<i>Bentonite Grout</i>		63.0-77.0 <u>SAND AND GRAVEL</u> , gray, m.-c. sand, fn. gravel, trace c. gravel, little-some c. gravel @ 75', wet.	DT5	NA	NA	0	
69								
70								
71								
72								
350 73								
74								
75								
76								
77								
345 78								
			77.0-99.0 <u>SAND AND GRAVEL</u> , gray, m.-c. sand, fn. gravel, trace c. gravel, wet.					



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ch1well2

DRILLING LOG OF WELL NO. MW8D

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Project: Jennison-Wright

Total Depth of Hole (feet BGS): 117

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
79				DT5	NA	NA	0	
80								
81								
82								
83								
84								
85								
86								
87								
88								
340				DT6	NA	NA	0	
89								
90								
91								
92								
93								
94								
95								
96								
97								
335				DT6	NA	NA	0	
98								
99								
330				DT6	NA	NA	0	
93								
94								
95								
96								
97								
98								
99								
325				DT6	NA	NA	0	
93								
94								
95								
96								
97								
98								
99								



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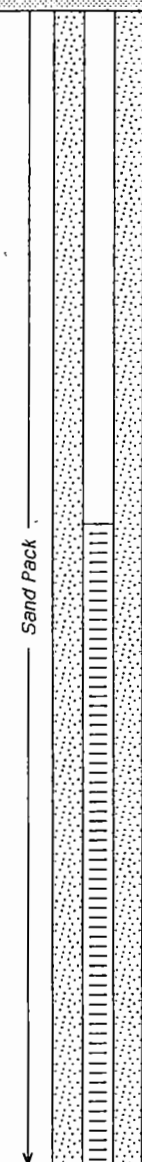
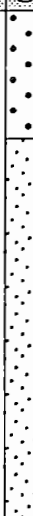
chiwell2

DRILLING LOG OF WELL NO. MW8D

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Project: Jennison-Wright

Total Depth of Hole (feet BGS): 117

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS					
100			99.0-101.0 <u>SANDY GRAVEL</u> , gray, fn. gravel, c. sand, wet.	DT6	NA	NA	0						
101			101.0-107.0 <u>SAND AND GRAVEL</u> , gray, c. sand, fn. gravel, trace c. gravel, wet.										
102													
103													
104													
105													
106													
107		107.0-117.0 <u>GRAVEL</u> , browinsh-gray, fn. gravel, little-some m.-c. sand, trace sand @ 115', wet.											
108													
109													
110													
111													
112													
113													
114													
115													
116													
117													
118									<u>BEDROCK</u> , limestone, grayish-white, cherty, unweathered. End of Boring @ 117.0'.				
119													
120													



IEPA - Jennison-Wright

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chiwell2

DRILLING LOG OF WELL NO. MW9S

Page 1 of 2

Project/Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 25

Boring Location:

Ground Elevation (feet above MSL): 422.36

Inner casing elevation (ft. above MSL): 424.76

Date Started/Finished: 8-12-97 / 8-12-97

Groundwater Depth (feet BGS):

Drilling Company: Layne-Western

During Drilling: 17

Driller/Geologist: Tim Elders / Sherri Johnson

After development: 17.8

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
gs elevation 422.36 ft.			ground surface (gs)					
1	Concrete		0.0-2.0 <u>SILT</u> , dark brown, some fn.-m. sand, trace fn. gravel, loose-medium, moist.					Drilling conducted using a CME-75 drill rig equipped with 4-1/4" I.D. hollow stem augers. Soil samples from 0-21' collected with a 2" I.D. split-spoon sampler at 5' centers. Split-spoon samples collected for chemical analysis. Lithology description taken from samples collected during drilling and continuous sampling of SB34.
2			2.0-2.3 <u>SANDY SILT</u> , brown, vfn. sand, loose-medium, moist.					
3			2.3-5.7 <u>SAND</u> , brown, vfn.-fn. sand, little silt, loose-medium, moist.					
4								Soil sample MW9S-5 collected at 1405 for semivolatile analysis.
5				SS1	NA	24	0	
6			5.7-8.0 <u>SANDY SILT</u> , brown, vfn. sand, loose-medium, moist.					
7								Soil sample MW9S-10 collected at 1410 for semivolatile and pH analysis.
8			8.0-13.0 <u>SAND</u> , brown, vfn.-fn. sand, trace-little silt, occasional 2"-3" sandy silt seams, some 1/4"-1/2" oxidation banding, medium, moist.					
9				SS2	NA	24	0	
10								
11								
12								
13			13.0-18.0 <u>SAND</u> , brown, trace black organic blebs, 1/2" silty clay seam @ 16', loose-medium, moist, wet @ 17'.	SS3	NA	24	0	
14								
15								



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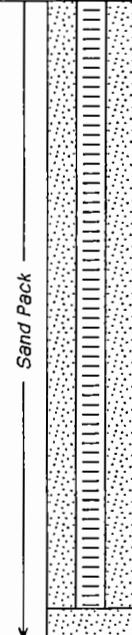
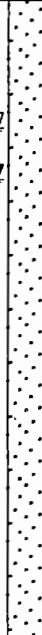
chiwell2

DRILLING LOG OF WELL NO. MW9S

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Project: Jennison-Wright

Total Depth of Hole (feet BGS): 25

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
16			18.0-25.0 SAND, brown, vfn.-fn. sand, little-some silt, some 1/4"-1/2" oxidation banding, grayish brown @ 22.2', medium, wet.	SS3	NA	24	0	Soil sample MW9S-15 collected at 1415 for semivolatile analysis.
17								
18								
19								
20				SS4	NA	24	0	Soil sample MW9S-20 collected at 1420 for semivolatile, grain size, and TOC analysis.
21								
22								
23								
24								
25								
26			End of Boring @ 25.0'.					
27								
28								
29								
30								
31								
32								
33								
34								
35								
36								



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chiwell2

DRILLING LOG OF WELL NO. MW9M

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Project/Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 57

Boring Location:

Ground Elevation (feet above MSL): 422.39

Inner casing elevation (ft. above MSL): 424.56

Date Started/Finished: 8-17-97 / 8-18-97

Groundwater Depth (feet BGS):

Drilling Company: Layne-Western

During Drilling: 17

Driller/Geologist: Tim Elders / Sherri Johnson

After development: 18.3

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
gs elevation 422.39 ft.			ground surface (gs)					
1	Concrete		0.0-2.0 GRAVEL, black, cinders, slag, dry.					Drilling conducted using an IR TH60 air rotary drill rig equipped for dual-tube reverse circulation drilling with 6-1/2" O.D. overshot casing.
2			2.0-3.0 SAND, brown, vfn.-fn. sand, little-some silt, moist.					
3			3.0-5.0 CLAY, brown, moist.					
4								
5			5.0-22.0 SAND, brown, vfn.-fn. sand, little-some silt, moist, wet @ 17'.					
6								
7								
8	Bentonite Grout			DT1	NA	NA	0	
9								
10								
11								
12								
13								
14								
15								



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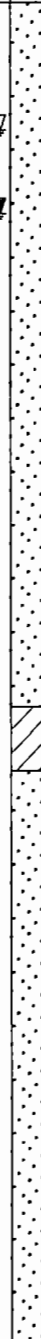

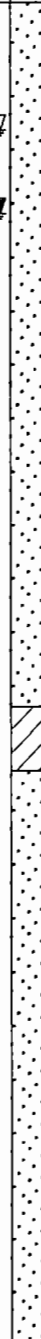
chiwell2

DRILLING LOG OF WELL NO. MW9M

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Project: Jennison-Wright

Total Depth of Hole (feet BGS): 57

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
16				DT1	NA	NA	0	
17								
18								
19								
20								
21								
22			22.0-26.0 SAND, gray, vfn.-fn. sand, trace m. sand and fn. gravel, lignite fragments, wet.					
23								
24								
25								
26			26.0-27.0 CLAY, gray, moist-wet.	DT2	NA	NA	0	
27			27.0-43.0 SAND, gray, vfn.-fn. sand, trace m. sand and fn. gravel, lignite fragments, wet.					
28								
29								
30								
31								
32								
33								
34								
35								
36								



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chiwell2

DRILLING LOG OF WELL NO. MW9M

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Project: Jennison-Wright

Total Depth of Hole (feet BGS): 57

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
37 385				DT2	NA	NA	0	
38								
39								
40								
41								
42								
43								
44								
45								
46								
47				DT3	NA	NA	0	
48								
49								
50								
51								
52								
53								
54								
55								
56								
57								

43.0-57.0 SAND, gray, fn.-m.
sand, trace c. sand and fn.
gravel, wet.

End of Boring @ 57.0'.

Some native sand heave during
overshot casing extraction and filter
sand pack installation. Base of well
pulled up to 55' during casing
extraction.



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chiwell2

DRILLING LOG OF WELL NO. MW9D

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Project/Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 115.3

Boring Location: _____

Ground Elevation (feet above MSL): 422.27

Inner casing elevation (ft. above MSL): 424.44

Date Started/Finished: 8-14-97 / 8-15-97

Groundwater Depth (feet BGS): _____

Drilling Company: Layne-Western

During Drilling: 18 ☒

Driller/Geologist: Tim Elders / Sherri Johnson

After development: 18.2 ☒

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
gs elevation 422.27 ft.			ground surface (gs)					
1	Concrete		0.0-2.5 GRAVEL, dark brown/black, c. gravel, little silt, cinders, slag, dry.					Drilling conducted using an IR TH60 air rotary drill rig equipped for dual-tube reverse circulation drilling with 6-1/2" O.D. overshot casing.
2								
3			2.5-23.0 SAND, brown, vfn.-fn. sand, little-some silt, little clay from 5'-7', moist, wet @ 18'.					
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								

C-24

IEPA - Jennison-Wright



ecology and environment, inc.



chlwell2

DRILLING LOG OF WELL NO. MW9D

Page 2 of 6

Project: Jennison-Wright

Total Depth of Hole (feet BGS): 115.3

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
16			23.0-42.0 SAND, gray, vfn.-m. sand, trace c. sand, trace fn. gravel, lignite fragments, wet.	DT1	NA	NA	0	
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27				DT2	NA	NA	0	
28								
29								
30								
31								
32								
33								
34								
35								
36								



IEPA - Jennison-Wright

C-25

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chlwel12

DRILLING LOG OF WELL NO. MW9D

Page 3 of 6

Project: Jennison-Wright

Total Depth of Hole (feet BGS): 115.3

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
37				DT2	NA	NA	0	
385								
38								
39								
40								
41								
42			42.0-65.0 SAND, gray, m.-c. sand, little-some fn. gravel, trace c. gravel, wet.					
380								
43								
44								
45								
46								
47				DT3	NA	NA	0	
375								
48								
49								
50								
51								
52								
370								
53								
54								
55								
56								
57								



IEPA - Jennison-Wright

C-26

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chiwell2

DRILLING LOG OF WELL NO. MW9D

Page 4 of 6

Project: Jennison-Wright

Total Depth of Hole (feet BGS): 115.3

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
365 58 59 60 61 62 360 63 64 65 66 355 67 68 69 70 71 72 350 73 74 75 76 77 345 78	Bentonite Grout		<p>65.0-67.0 <u>SAND AND GRAVEL</u>, gray, c. sand, fn. gravel, some c. gravel, wet.</p> <p>67.0-75.0 <u>SAND</u>, gray, m.-c. sand, little-some fn. gravel, trace c. sand, wet.</p> <p>75.0-81.0 <u>SAND AND GRAVEL</u>, gray, c. sand, fn. gravel, some c. gravel, wet.</p>	DT4	NA	NA	0	
				DT5	NA	NA	0	



IEPA – Jennison–Wright

C-27

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ch/well

DRILLING LOG OF WELL NO. MW9D

Page 5 of 6

Project: Jennison-Wright

Total Depth of Hole (feet BGS): 115.3

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches) SAMPLE / HOLE	FID/ PID (ppm)	COMMENTS	
79				DT5	NA	NA	0	Difficult drilling @ 90'-92'.	
80									
81			81.0-86.0 <u>SANDY GRAVEL</u> , gray, fn.-c. gravel, c. sand, trace cobbles, wet.						
82									
83									
84									
85									
86			86.0-90.0 <u>SAND AND GRAVEL</u> , gray, c. sand, fn. gravel, some c. gravel, trace-little cobbles, wet.						
87									
88									
89							Difficult drilling @ 95'-97'.		
90	90.0-92.0 <u>COBBLES</u> , grayish-white, cherty.								
91									
92	92.0-95.0 <u>SAND AND GRAVEL</u> , gray, c. sand, fn. gravel, some c. gravel, trace cobbles, wet.								
93									
94									
95	95.0-97.0 <u>COBBLES</u> , grayish-white, cherty.								
96									
97	97.0-112.0 <u>SAND AND GRAVEL</u> , gray, c. sand, fn. gravel, some c. gravel, wet.								
98									
99									



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IEPA - Jennison-Wright

C-28

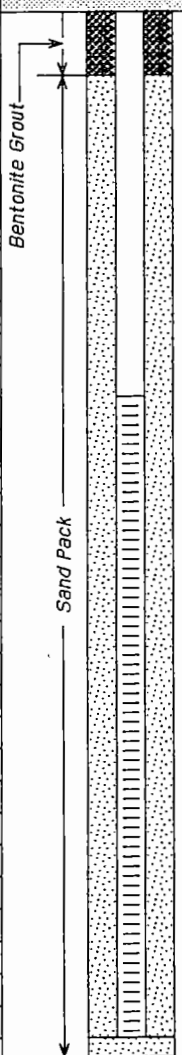
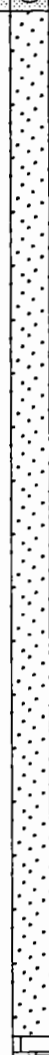
chilwell2

DRILLING LOG OF WELL NO. MW9D

Page 6 of 6

Project: Jennison-Wright

Total Depth of Hole (feet BGS): 115.3

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
100								
101								
102								
103								
104								
105								
106								
107								
108								
109								
110								
111								
112			112.0-115.0 SAND, brownish-gray, m.-c. sand, little fn. gravel, trace c. gravel, wet.					
113								
114								
115			115.0-115.3 BEDROCK, limestone, grayish-white, cherty, unweathered. End of Boring @ 115.3'.					
116								
117								
118								
119								
120								



IEPA - Jennison-Wright

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chiwell2

DRILLING LOG OF WELL NO. MW11M

Page 1 of 3

Project/Location: Jennison-Wright / Granite City, Illinois

Total Depth of Hole (feet BGS): 57

Boring Location: _____

Ground Elevation (feet above MSL): 422.86

Inner casing elevation (ft. above MSL): 424.96

Date Started/Finished: 8-17-97 / 8-17-97

Groundwater Depth (feet BGS): _____

Drilling Company: Layne-Western

During Drilling: 17

Driller/Geologist: Tim Elders / Sherri Johnson

After development: 19

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
gs elevation 422.86 ft.			ground surface (gs)					
1	Concrete		0.0-2.0 <u>CLAYEY GRAVEL</u> , dark gray/black, fn. gravel, cinders, slag, dry.					Drilling conducted using an IR TH60 air rotary drill rig equipped for dual-tube reverse circulation drilling with 6-1/2" O.D. overshot casing.
2			2.0-12.0 <u>SAND</u> , brown, vfn.-fn. sand, little-some silt, moist.					
3								
4								
5								
6								
7								
8	Bentonite Grout			DT1	NA	NA	0	
9								
10								
11								
12								
13			12.0-26.0 <u>SAND</u> , brown, vfn.-fn. sand, trace silt, trace c. sand @ 12'-14', moist, wet @ 17'.					
14								
15								



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IEPA - Jennison-Wright

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chiwell2

DRILLING LOG OF WELL NO. MW11M

Page 2 of 3

Project: Jennison-Wright

Total Depth of Hole (feet BGS): 57

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	SAMPLE / HOLE	COMMENTS
16				DT1	NA	NA	0		
17									
18									
19									
20									
21									
22									
23									
24									
25									
26			26.0-34.0 SAND, brown, fn.-m. sand, trace fn. gravel, lignite fragments, wet.	DT2	NA	NA	0		
27									
28									
29									
30									
31									
32									
33									
34									
35									
36			34.0-39.0 SAND, brown, m.-c. sand, little fn. gravel, wet.						



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IEPA - Jennison-Wright

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chiwell2

DRILLING LOG OF WELL NO. MW11M

Page 3 of 3

Project: Jennison-Wright

Total Depth of Hole (feet BGS): 57

ELEVATION DEPTH	WELL COMPLETION DIAGRAM	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	SAMPLE NUMBER SAMPLE INTERVAL	BLOW COUNT	RECOVERY (inches)	FID/ PID (ppm)	COMMENTS
37				DT2	NA	NA	0	
385 38								
39			39.0-57.0 SAND, grayish-brown, fn.-m. sand, trace c. sand, gray @ 52', wet.					
40								
41								
42								
380 43								
44								
45								
46								
47				DT3	NA	NA	0	
375 48								
49								
50								
51								
52								
370 53								
54								
55								
56								
57			End of Boring @ 57.0'.					

Some native sand heave during
overshot casing extraction and filter
sand pack installation. Base of well
pulled up to 55.5' during casing
extraction.



ecology and environment, inc.

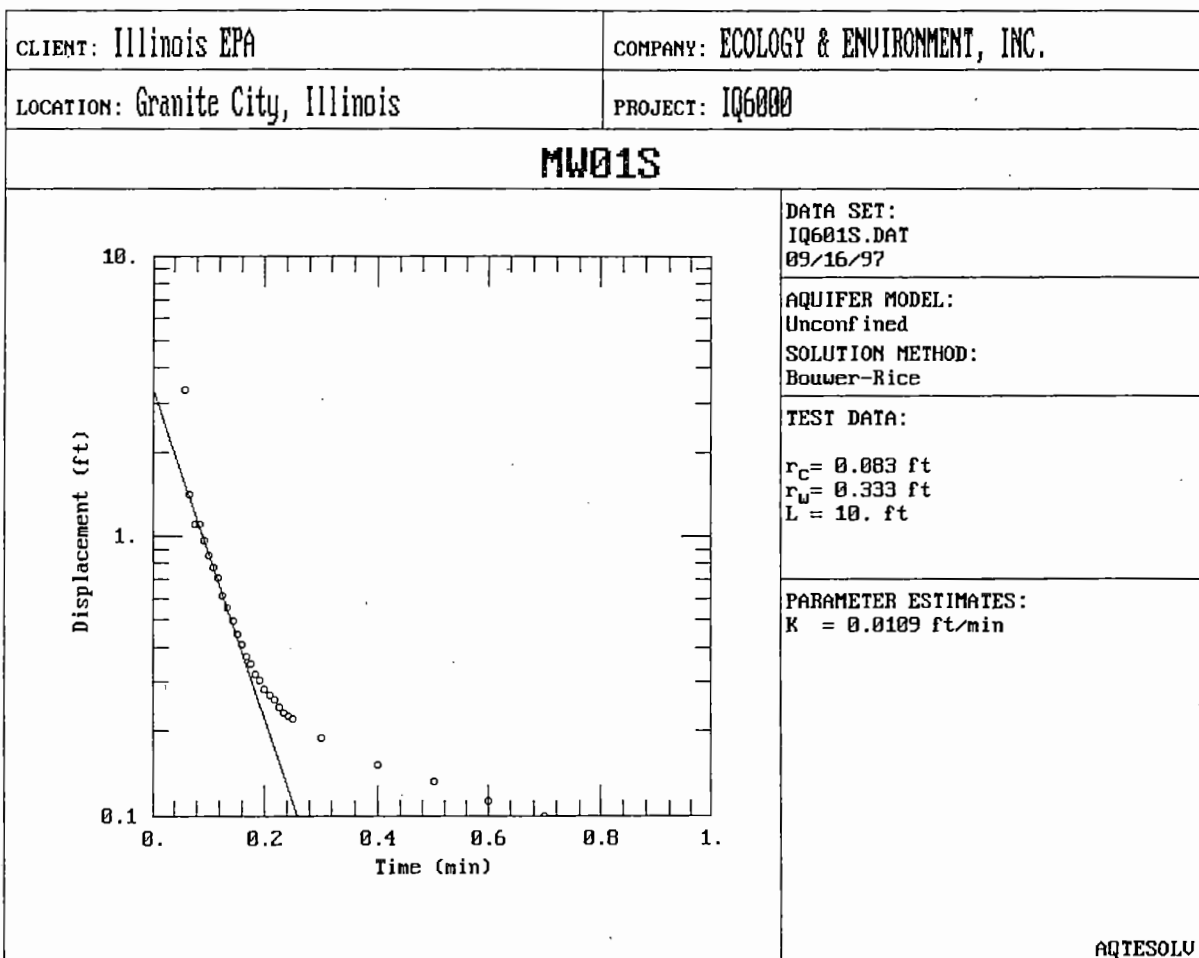
IEPA - Jennison-Wright

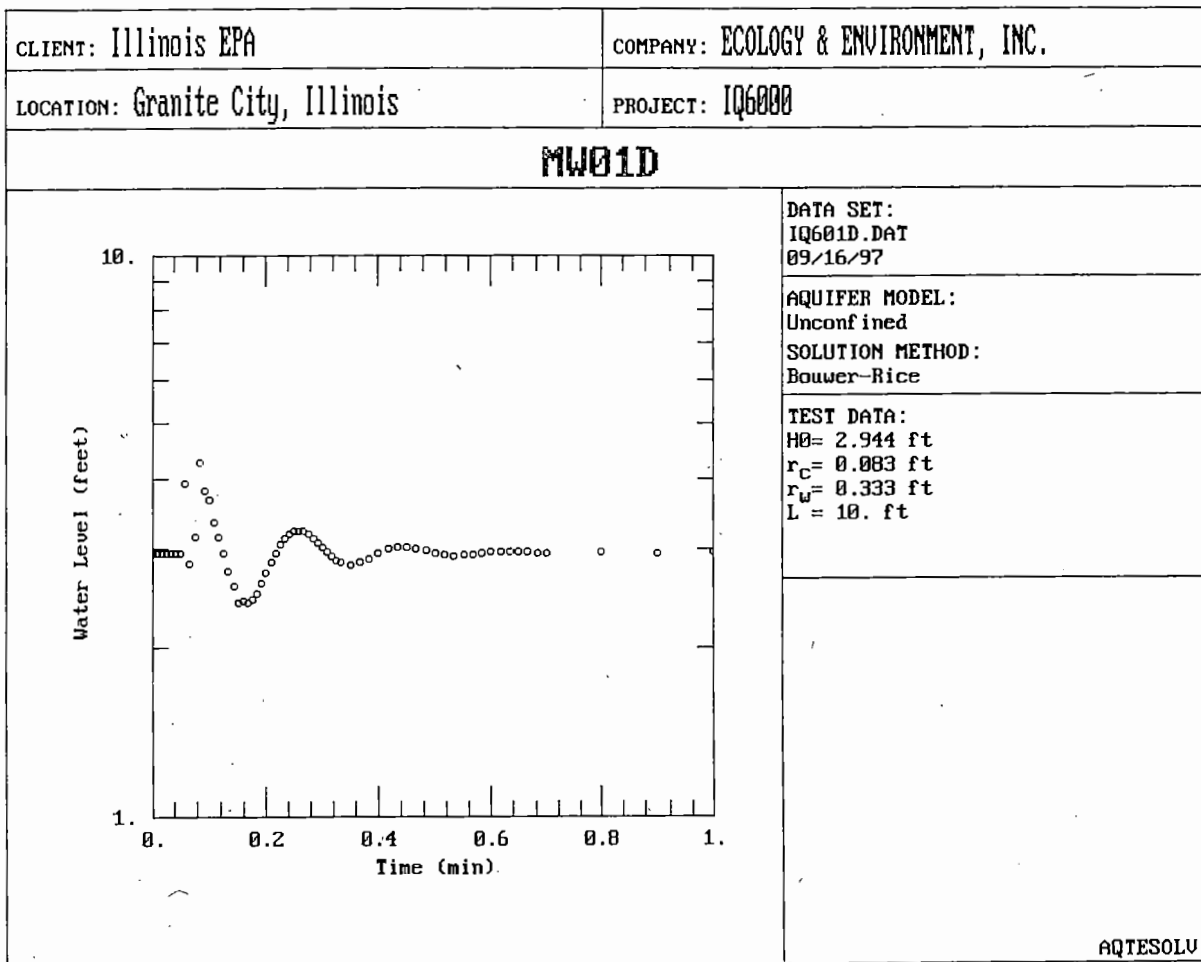
C-32

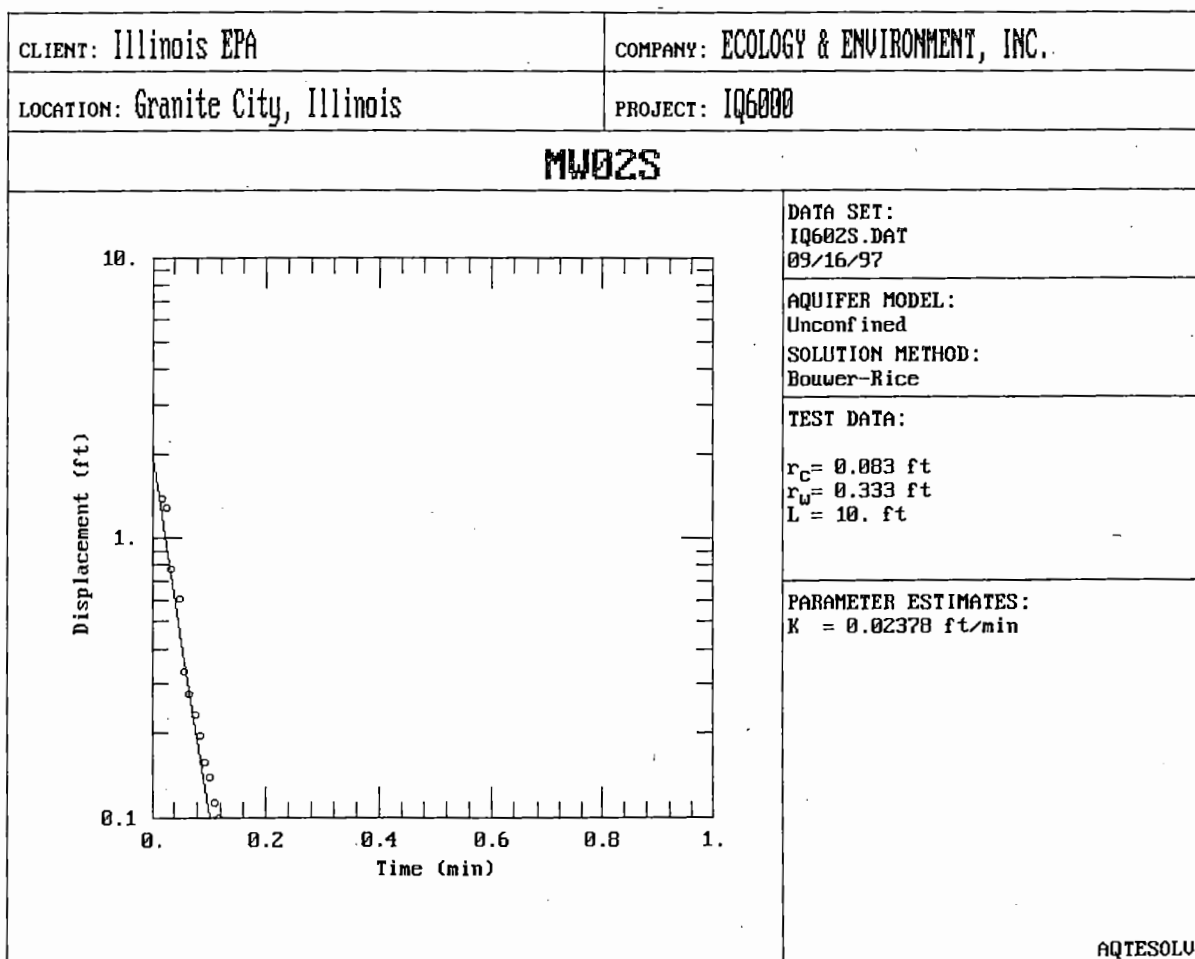
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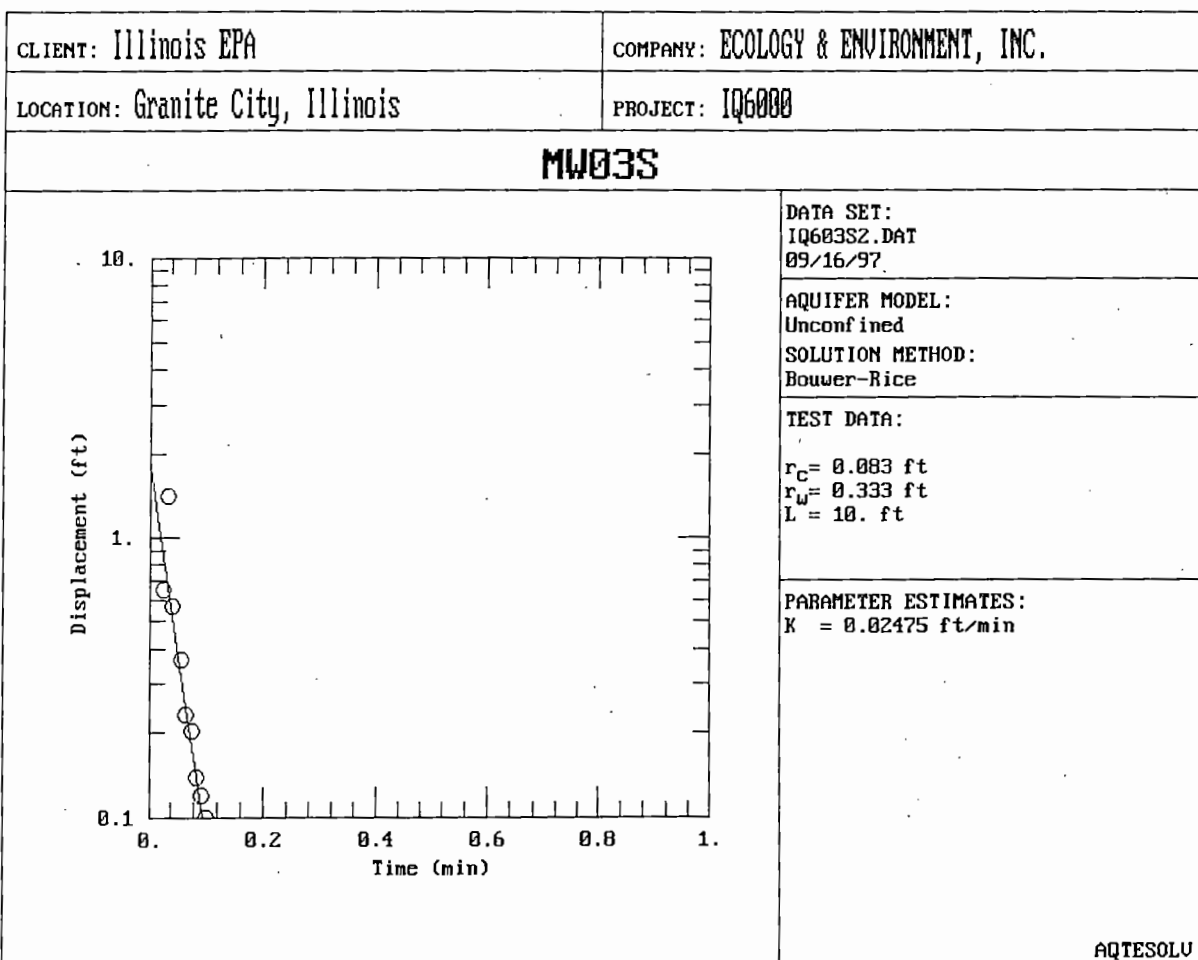
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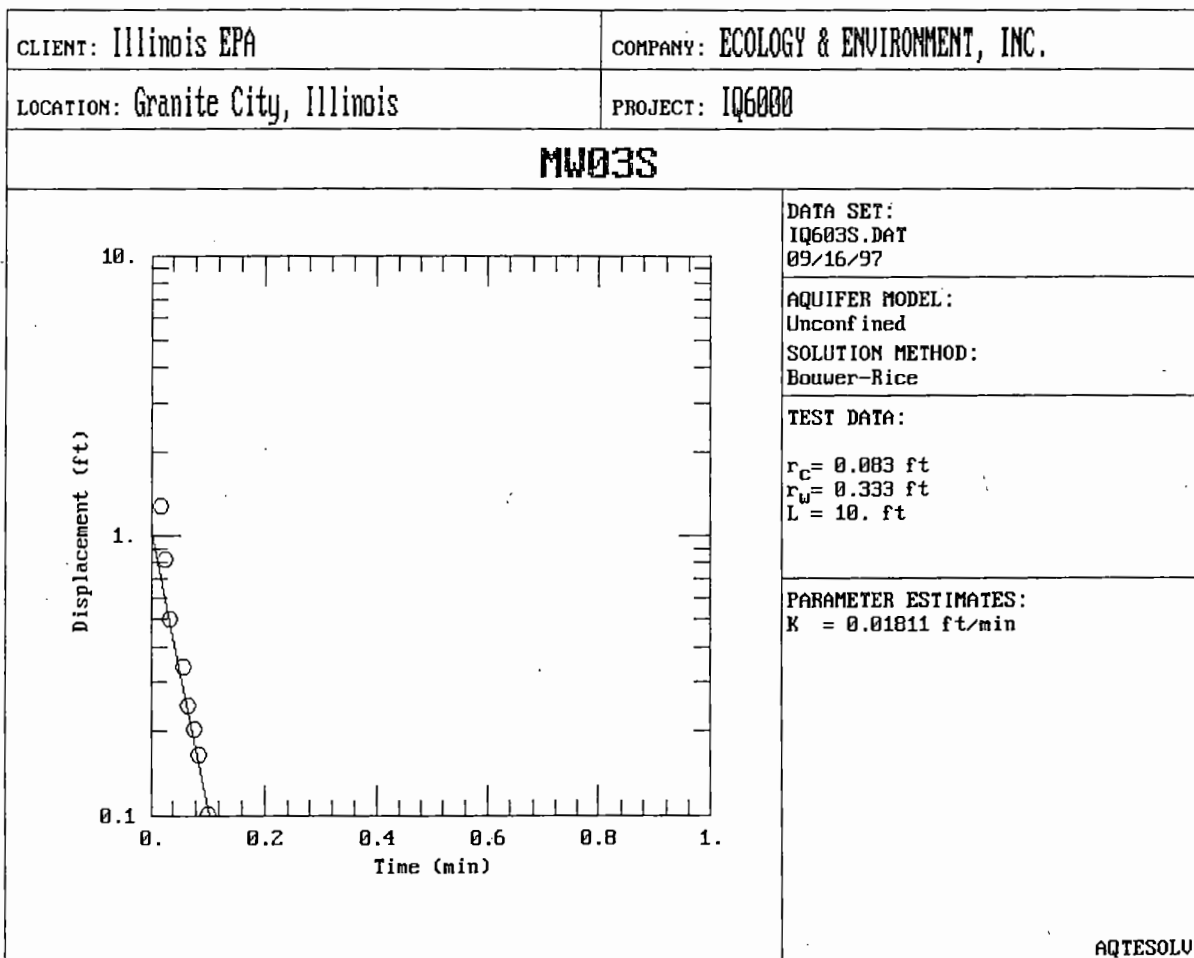
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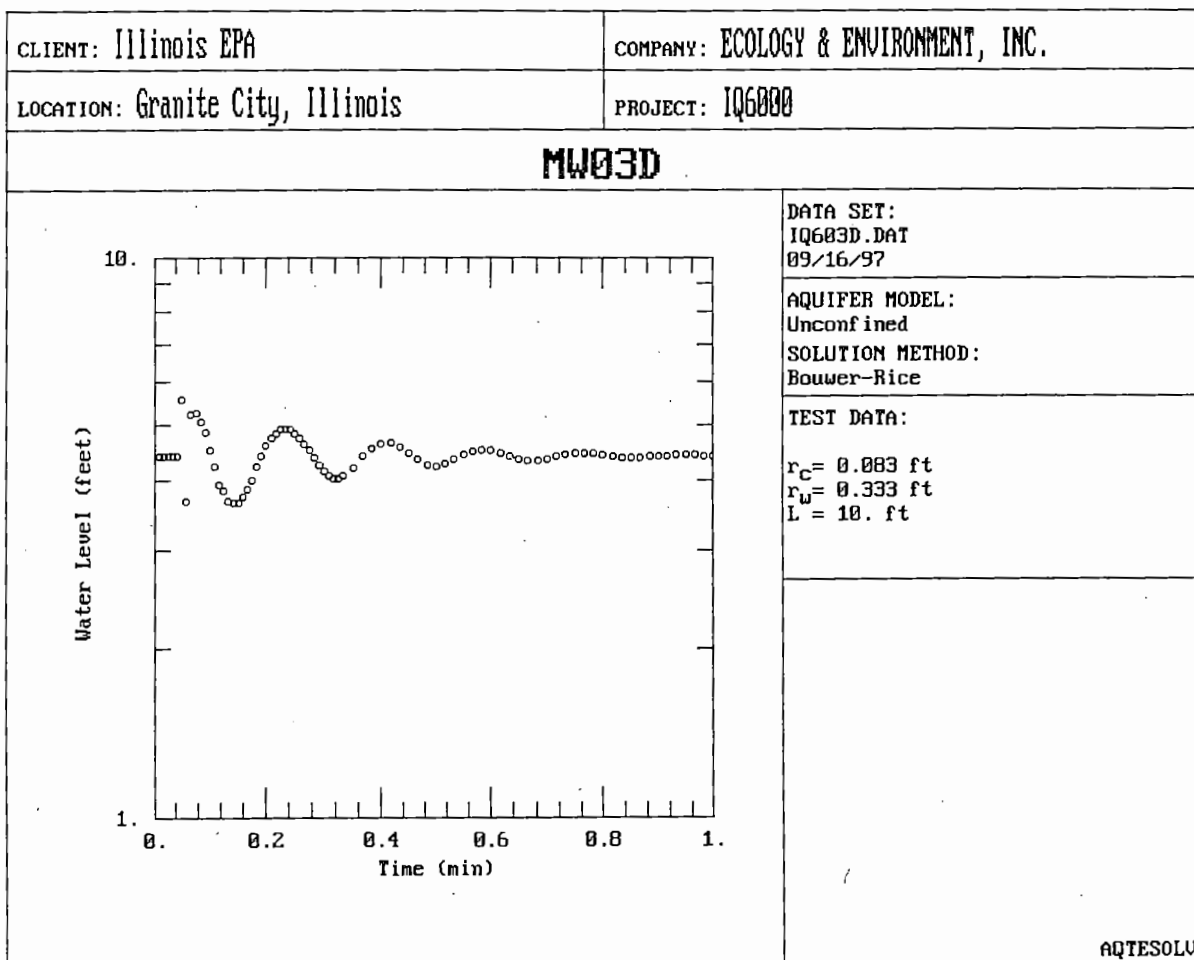


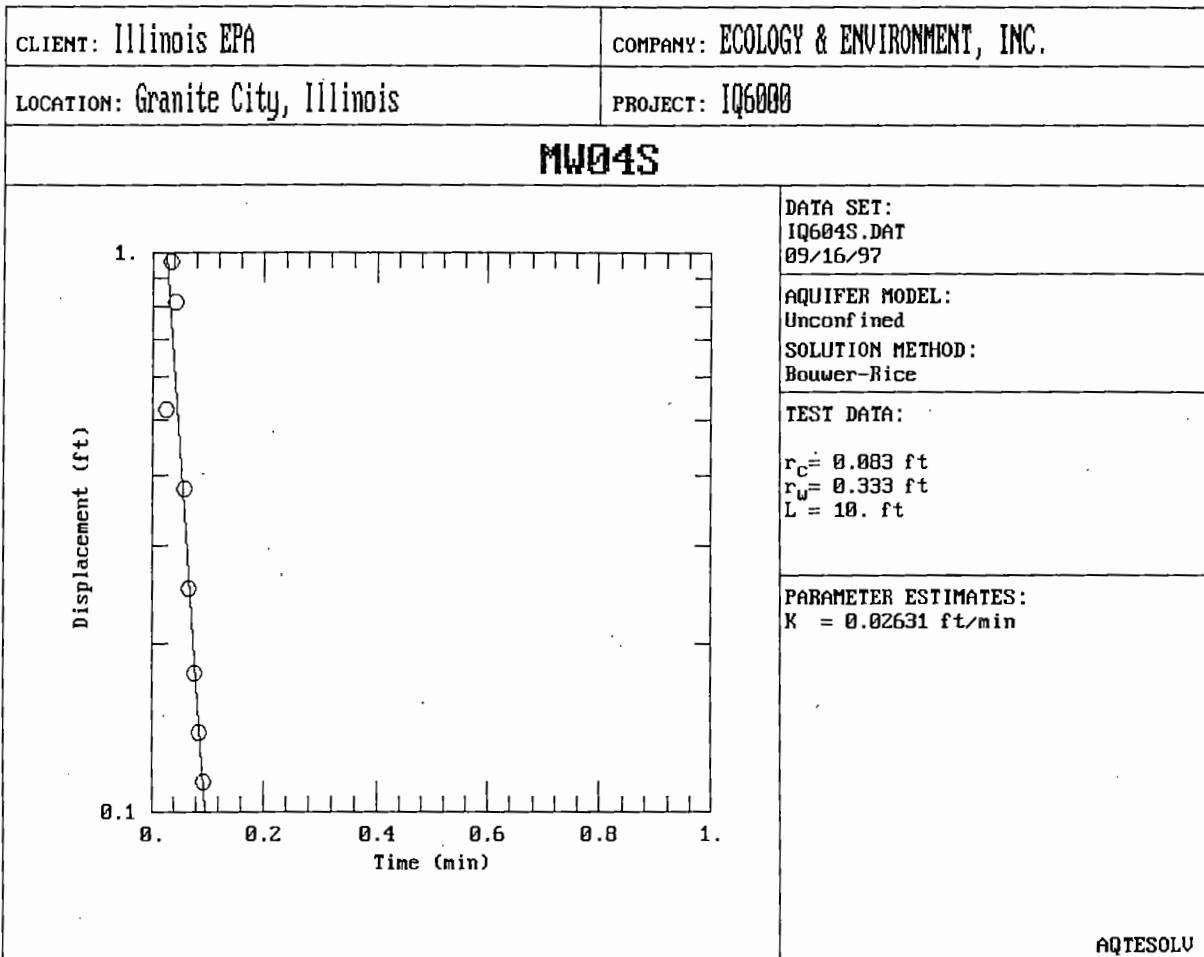


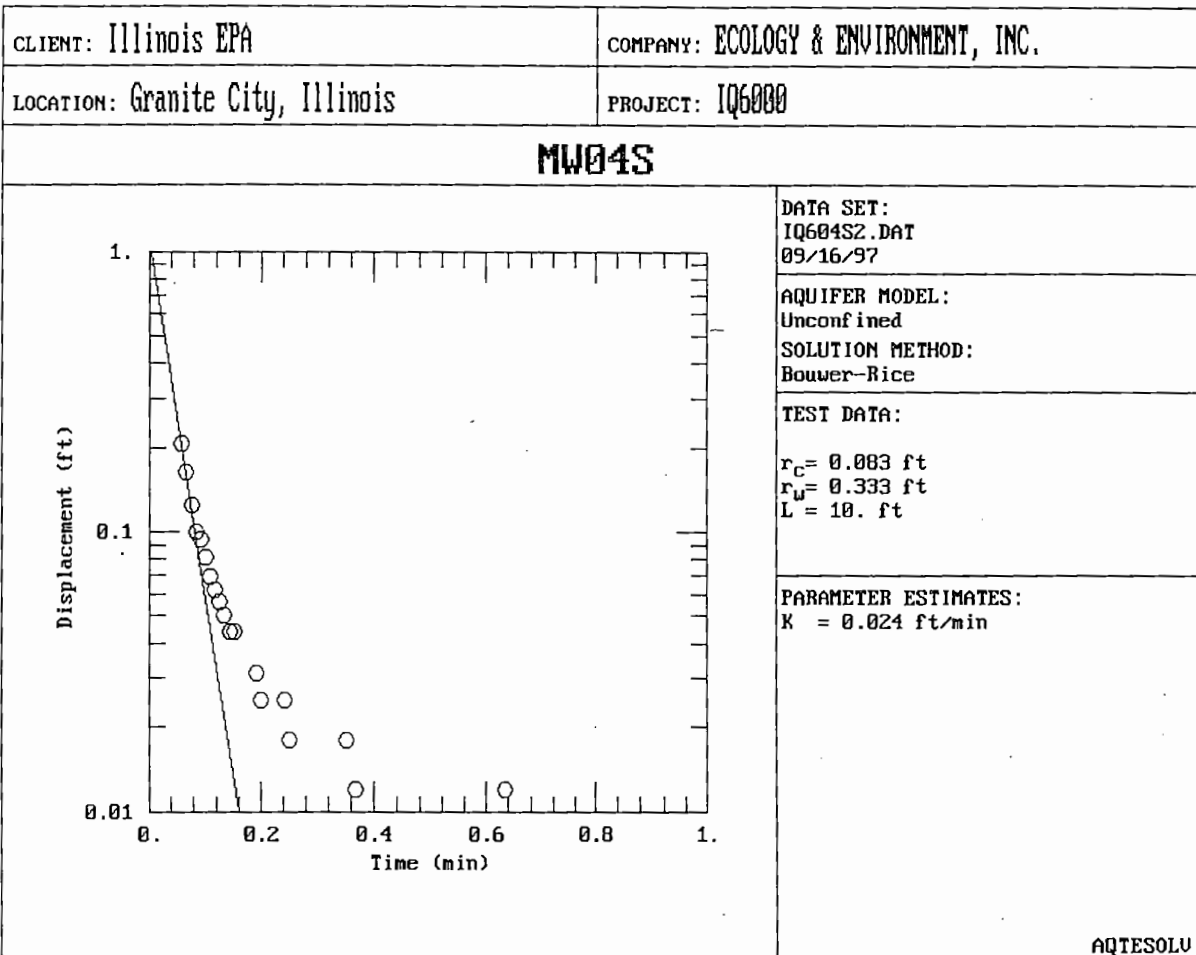


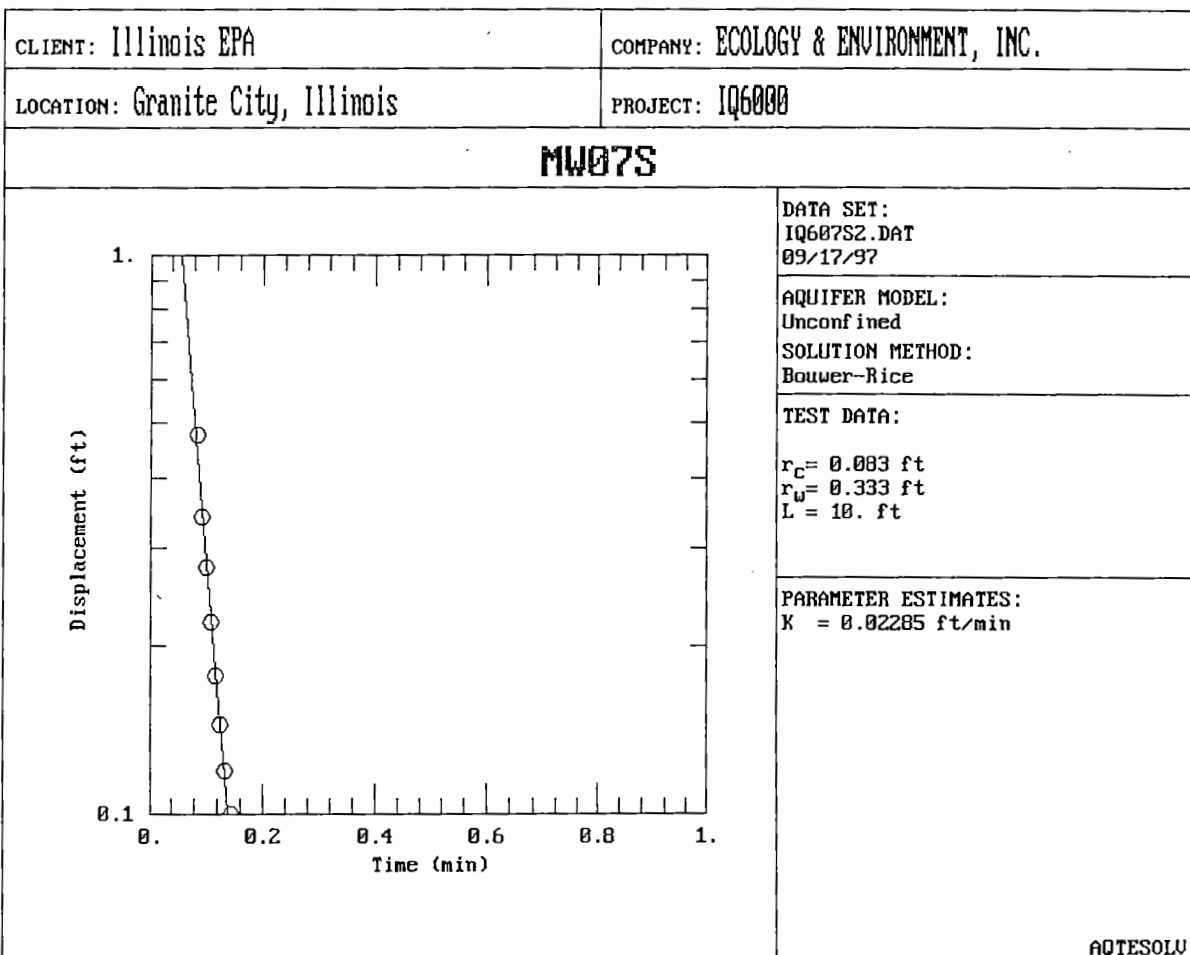


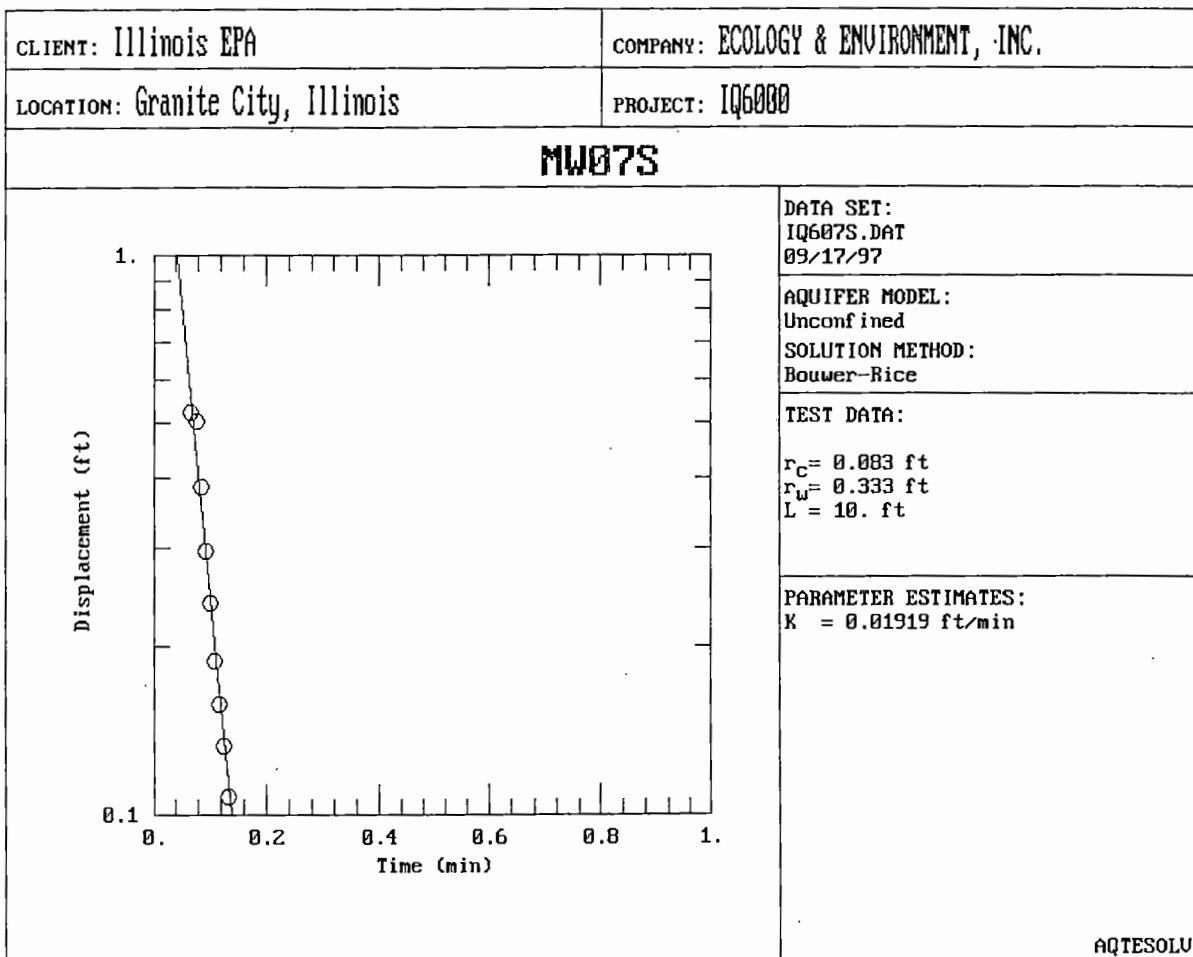


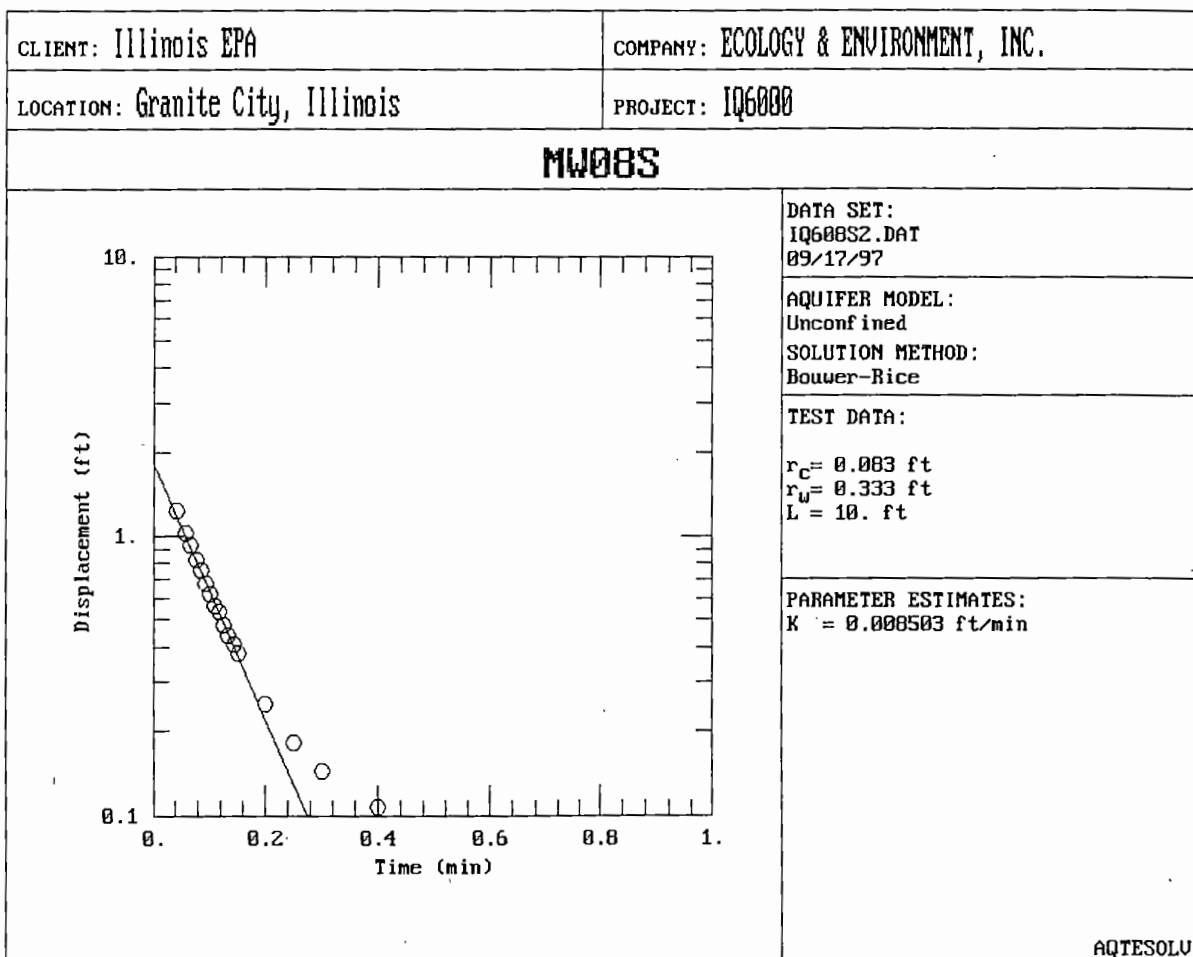


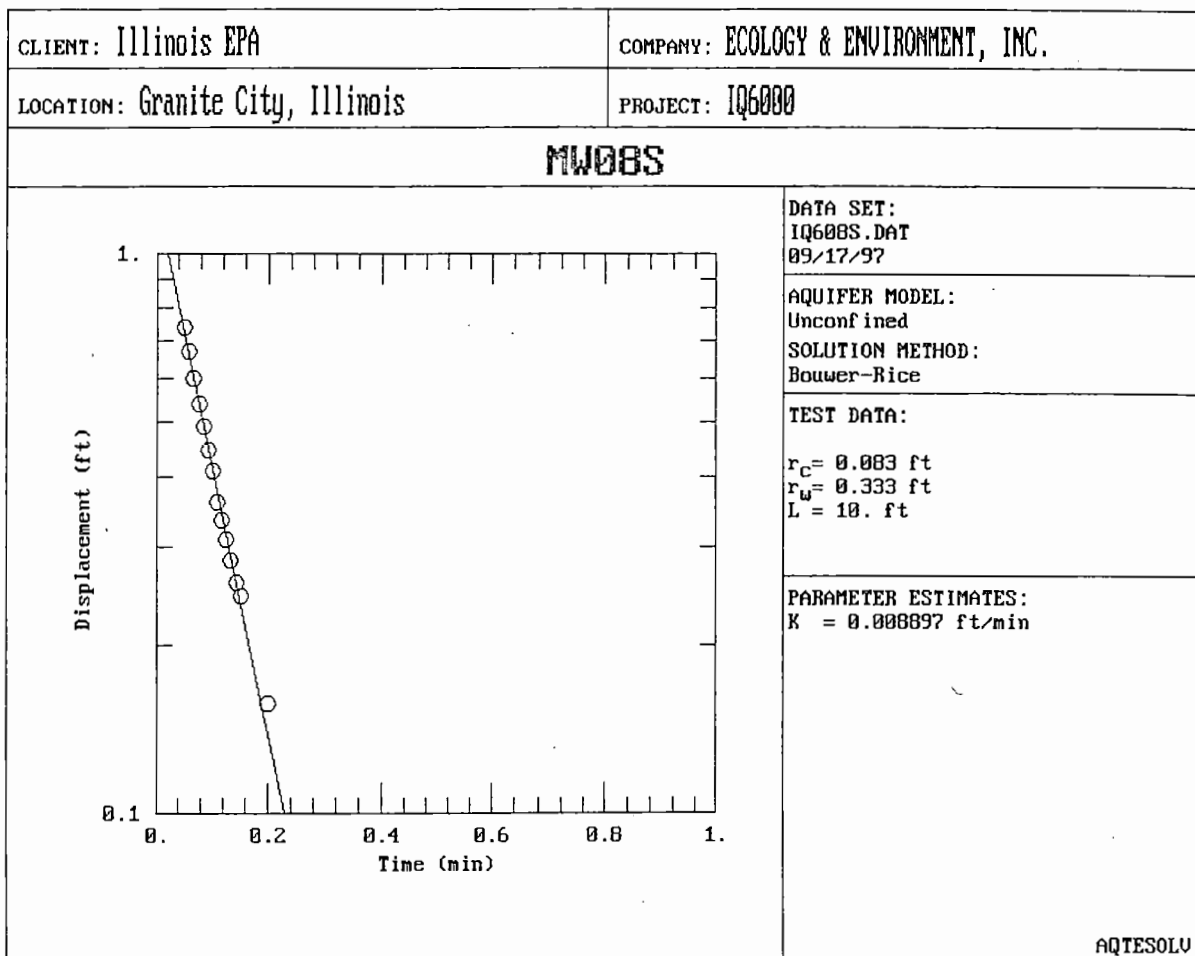


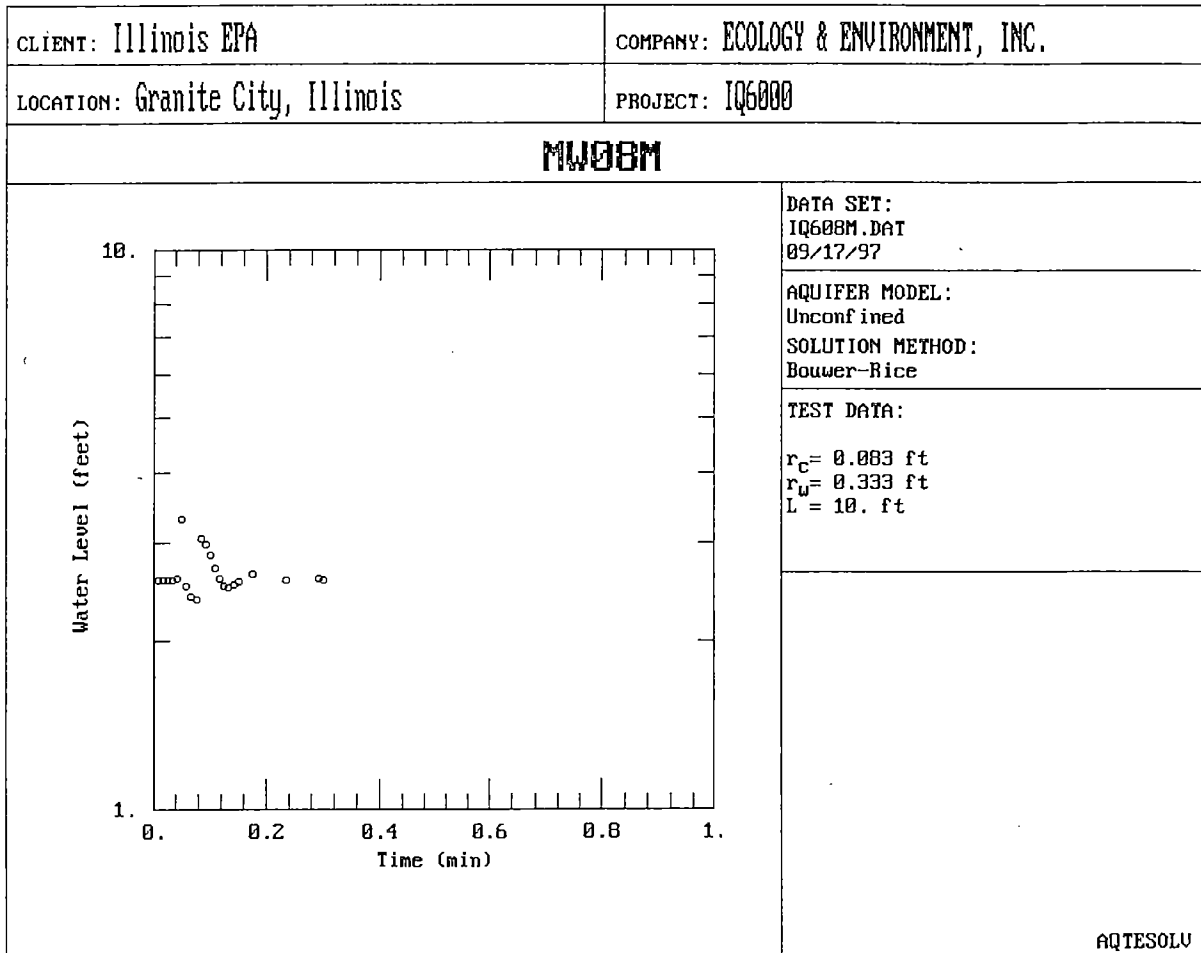


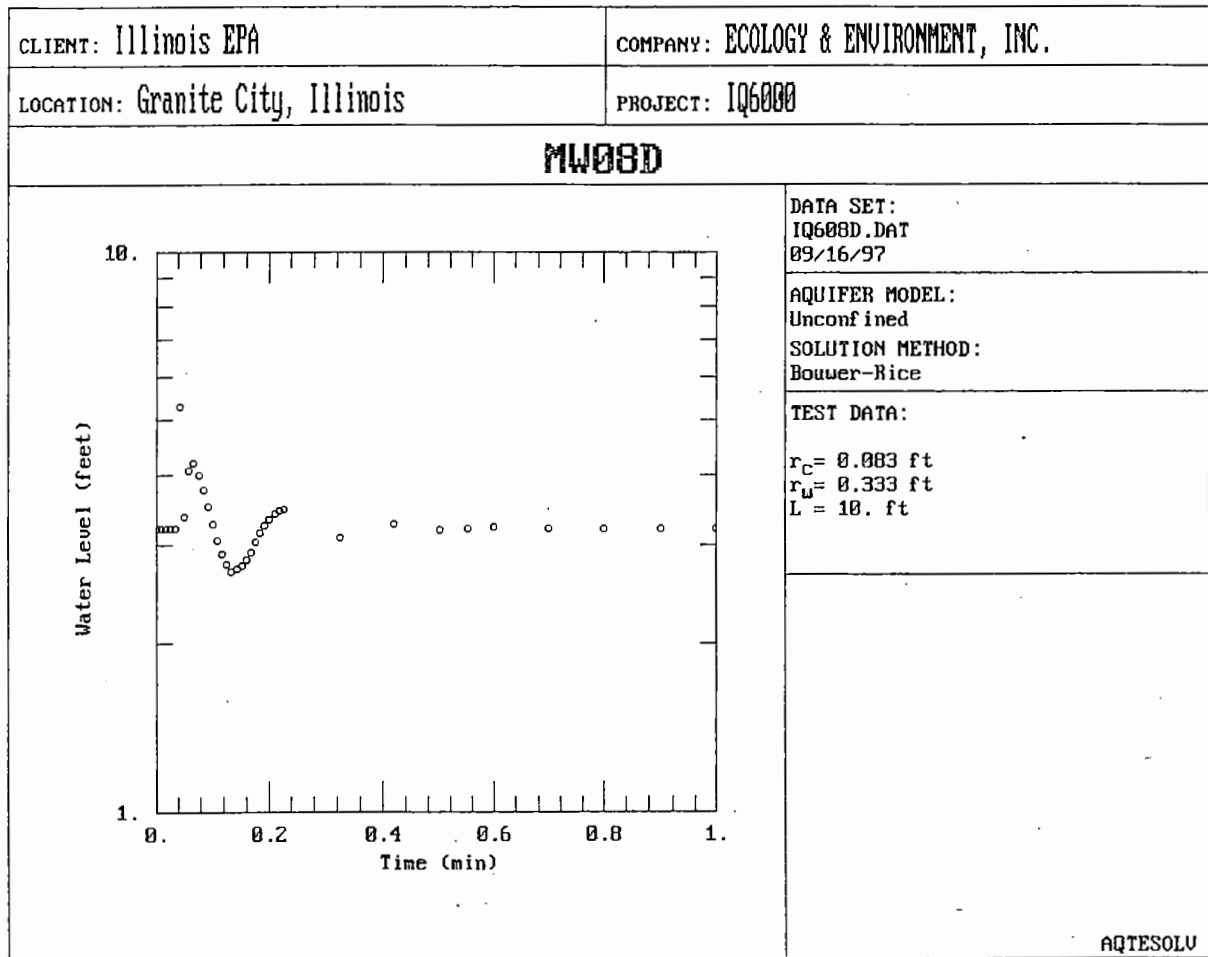


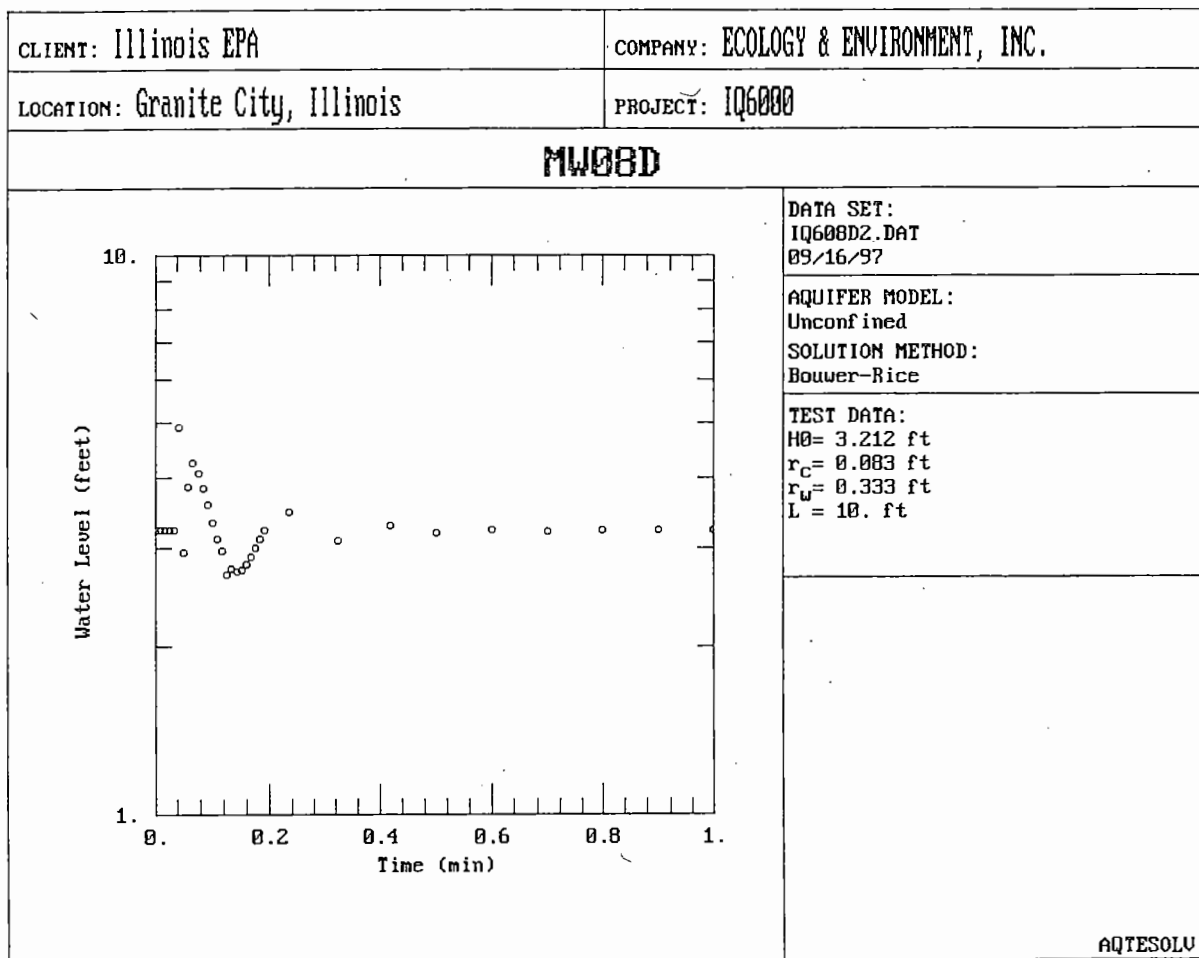


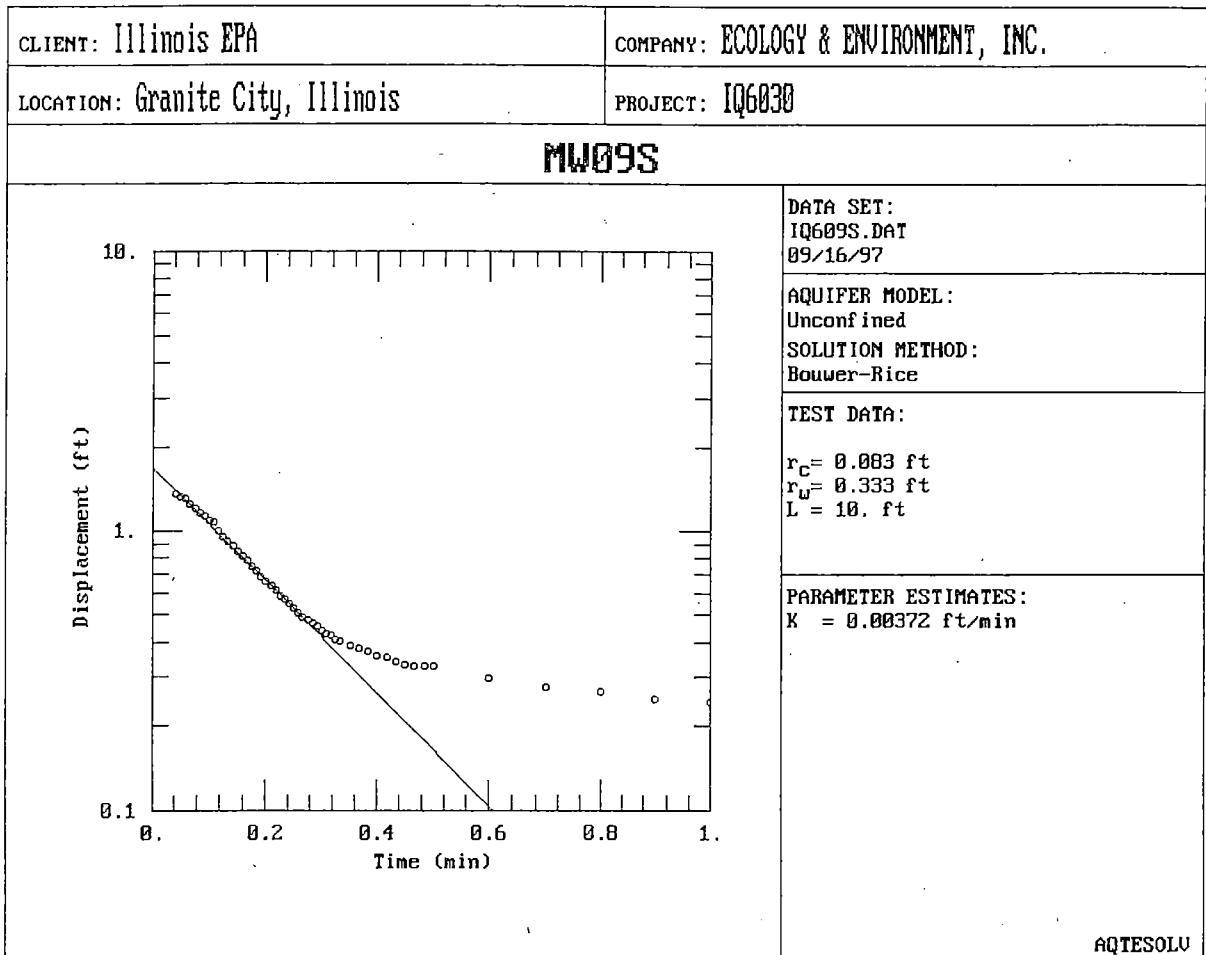


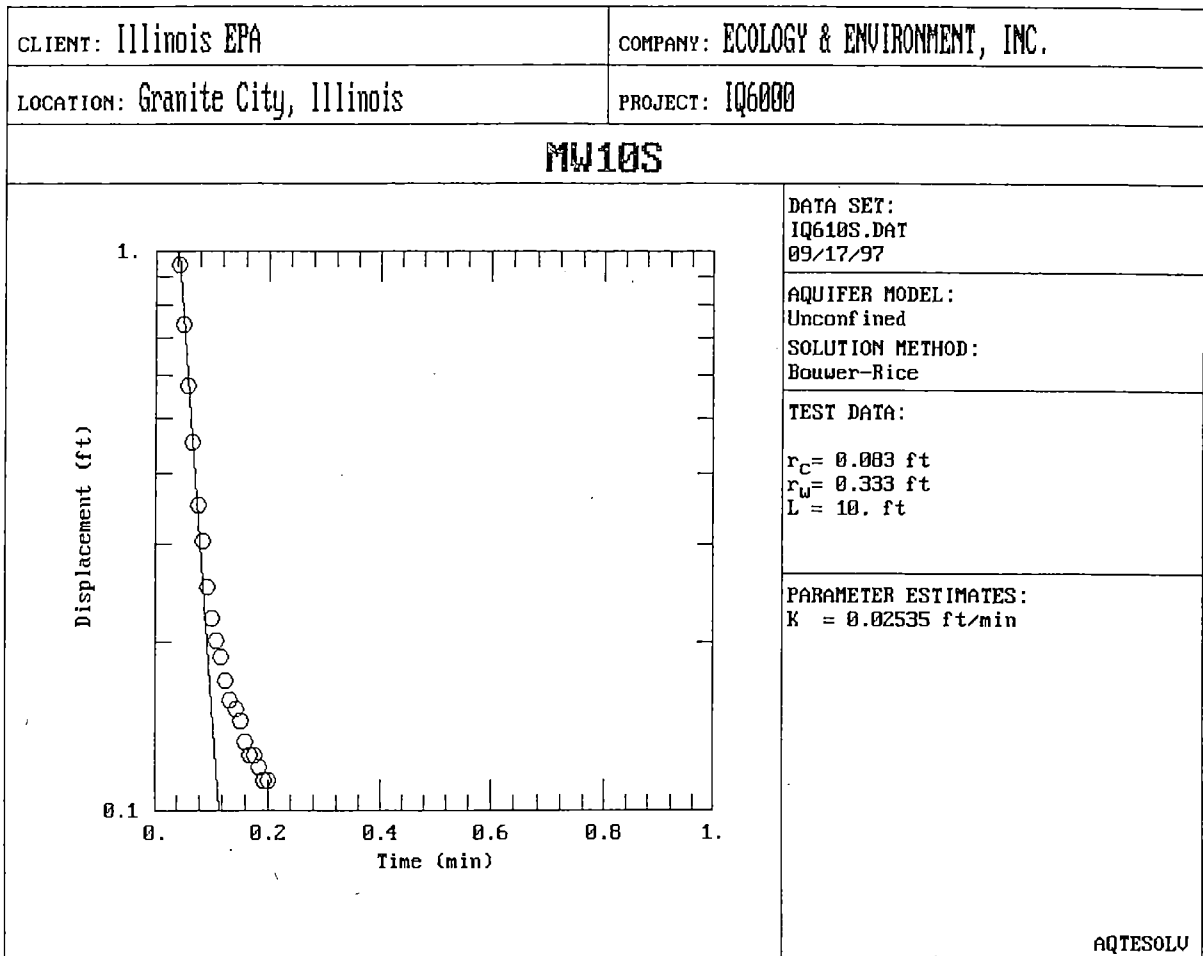


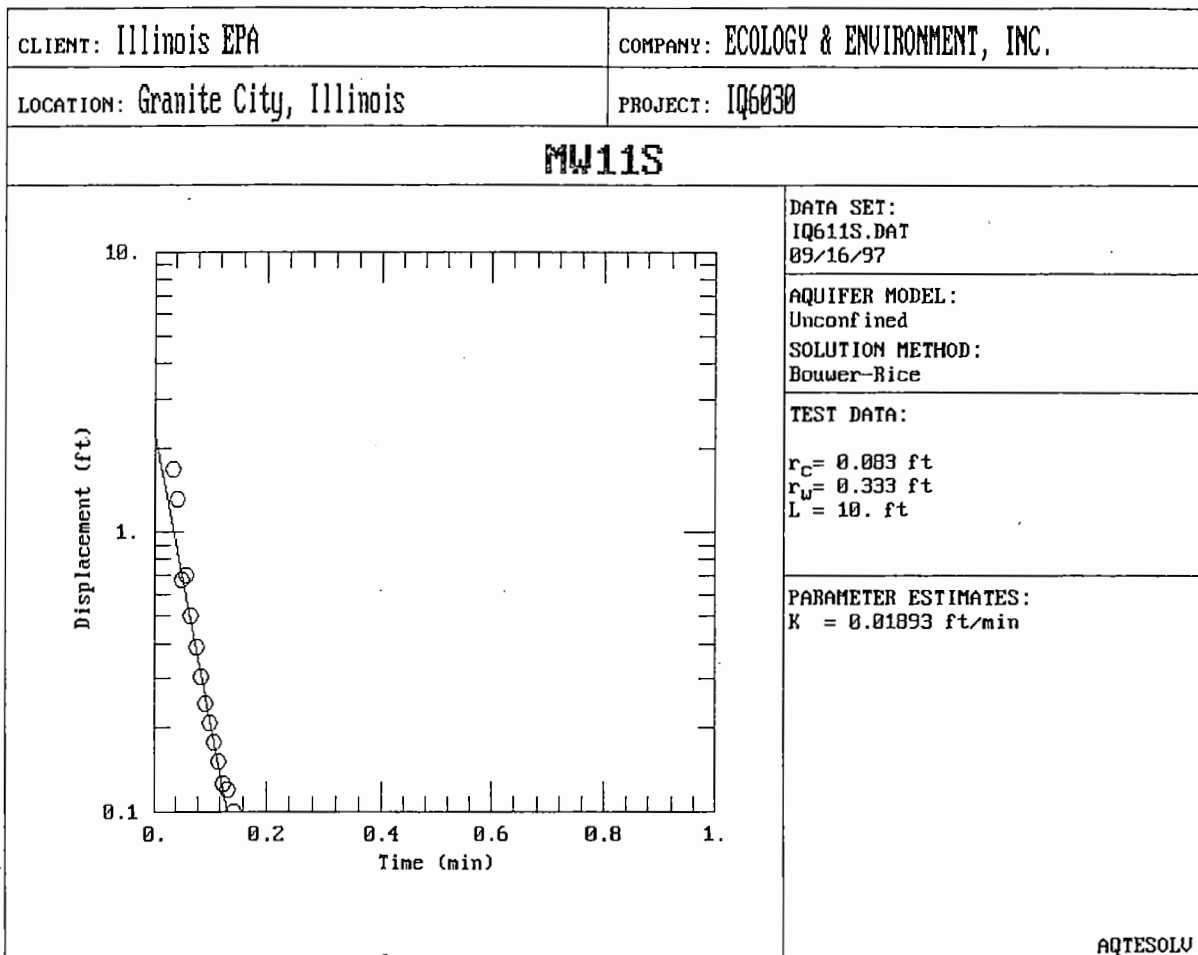


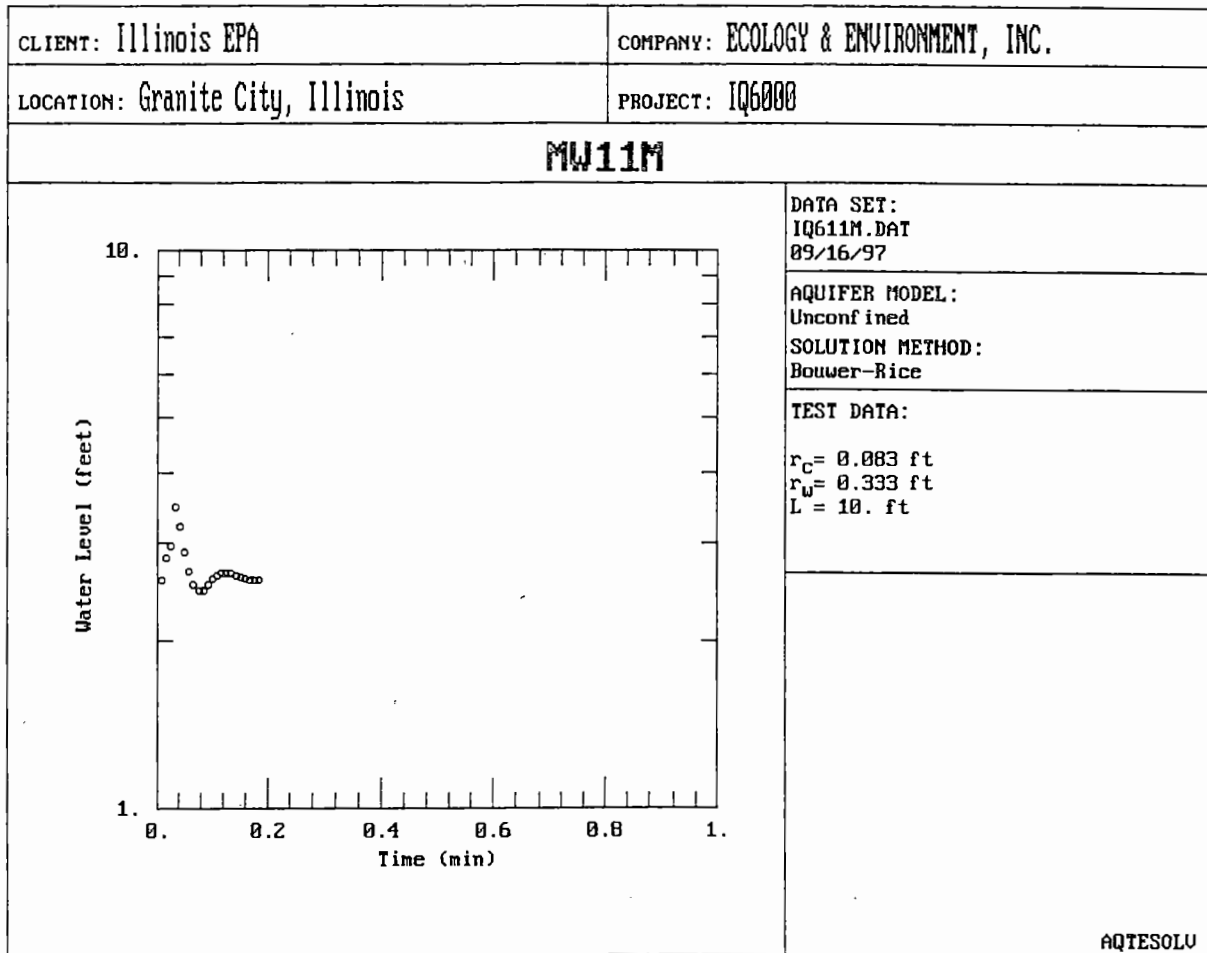












E

Structural Assessment of Site Buildings

STRUCTURAL ASSESSMENT OF
SITE BUILDINGS

at the

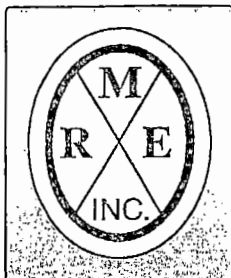
Jennison - Wright Site
900 W. 22nd Street
Granite City, Illinois

submitted to :

ECOLOGY AND ENVIRONMENT, INC.

33 North Dearborn Street
Chicago, Illinois 60602

prepared by:



Rubinos & Mesia Engineers, Inc.

200 S. MICHIGAN AVENUE, SUITE 1500 CHICAGO, IL 60604-2482

October, 1997

**Final
Structural Assessment of Site Buildings
at the
Jennison -Wright Site**

**900 W. 22nd Street
Granite City , Illinois**

By:

RUBINOS & MESIA ENGINEERS, INC.

for

Ecology and Environment, Inc.

October 1997

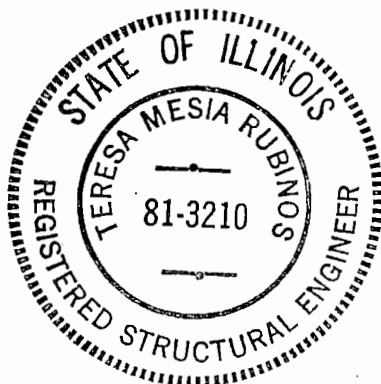
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II Scope of this Report	2
III General Description of Site Existing Structures	2
IV General Method of Observation	3
V Structural Assessment	5
A. Office Building	
B. White Building	
C. Boiler Building	
D. Transit Building	
E. Creosote Treatment Building	
F. Silos	

Attachment 1 - Site Location Map

Attachment 2 - Building Location at Site

Attachment 3 - Photographs of Existing Structures



Date: 10/17/97

Teresa Mesia Rubinos

Approved by Teresa Mesia-Rubinos
P.E., S.E.

**Structural Assessment of Site Buildings
at the
Jennison -Wright Site**

**900 W. 22nd Street
Granite City , Illinois**

By:

RUBINOS & MESIA ENGINEERS, INC.

for

Ecology and Environment, Inc.

I. EXECUTIVE SUMMARY

The scope of work for Rubinos & Mesia Engineers Inc. was to review the seven structures found on the Jennison-Wright facility and provide a general evaluation for long term structural integrity when exposed to the elements.

The following are the structures located on the site which were evaluated:

- A. The Office Building
- B. The White Building
- C. The Boiler House
- D. The Transite Building
- E. The Creosote Treatment Building
- F. Two Silos

From the limited time spent on the site and from observing only the exposed elements of the seven structures, using our best engineering judgement, only the Office Building did not show extensive distress and with a small amount of work to repair the roof, the structure could be rehabilitated.

For the White Building, the Boiler Building, the Transite Building and the Cresote Treatment Building, the number of deteriorated components is so great that rehabilitation would be very costly. The rehabilitation structure would still consist of some original components with very little life left. In addition, the integrity of the foundation is not known. Therefore, we recommend that these four structures be demolished.

The Silos have significant deterioration but are not in imminent danger of collapse. However, before they could be made reliably useful, extensive rehabilitation would be required. In our judgement, the Silos also should be demolished.

II. SCOPE OF THIS REPORT

The scope of work includes the following tasks for the seven structures on the Jennison - Wright facility.

- A. Description of existing structure.
- B. A visual observation of existing conditions. Photographs are included in the attachments #3 and are listed in the text.
- C. A general observation about the future structural long term evaluation of the building integrity relating to exposure to the elements.

III. GENERAL DESCRIPTION OF SITE AND EXISTING STRUCTURES

The site is approximately 20 acres, located at 900 West 22nd Street, in Granite City, Illinois. See attached sheets in attachment 1 for site location.

The seven structures located on the site are as shown on the map in attachment #2. The buildings of concern are: (The sizes shown are approximate)

- A. The Office Building - One story, wood framed - 60' x 30'.
- B. The White Building - Three separate sections. The 3 sections are not separate from each other.
- C.
 - a. Two story, white painted block - 50' x 40'.
 - b. One story, white painted block - 40' x 20'.
 - c. One story, wood frame w/metal roof and metal siding - 50' x 40'.
- D. The Boiler Building- two story, brick - 60' x 50'.
- E. The Transite Building- One story, timber framed with the siding attached on a light wood frame 80' x 60'.
- F. Creosote Treatment Building - One story wood framing with pre-finished metal roof and metal siding - 100' x 25'.
- G. Two Silos - masonry units, tied together with rod ties, 15' - 6" diameter x 35'-0" high.

All of the wood and heavy timbers which were used to construct the various wood buildings, appear to have been treated with a preservative.

IV. General Method of Observation

Henry Jelen, Senior Structural Project Engineer, of Rubinos & Mesia Engineers, Inc. visited the site on July 30, 1997.

The investigation consisted of visually observing the exposed components of the existing structures. No destructive testing was made of the structural components. Mr. Bill Schaefer of Ecology and Environment, Inc. was present on the site at the time of the field investigation. Henry Jelen had the drawing included in Attachment 2. No existing drawings were available prior to or at the time of the field visit.

All evaluations and recommendations are based on observations of the exposed components at the time of the visit. The evaluations also reflect our best engineering judgement of the conditions of the components noted in this report. We have not disassembled any sub-system. No guarantee nor warranty that the buildings and their components are in a safe condition, is expressed nor implied by Rubinos & Mesia Engineers, Inc.

In order to obtain additional information about the area in which the site is located, the Granite City Building and Zoning Administrator, Mr. Glen Hollis was contacted. (Telephone 618-452-6218)

The following information was obtained from him, which governs this site:

1. BOCA (Building Officials & Code Administrators International, Inc.) 1996 Building Code.
2. Seismic acceleration of 0.1 and 0.15 - the values represent a very high seismic activity.

Because the structures on this site are old, (no exact age is available at this time), the structures seem to have been built prior to the incorporation of seismic criterion to their designs. In many communities, if old structures are to be expanded and/or change occupancy, they may need to be retrofitted to conform to the new standards.

From preliminary discussions with Mr. Hollis, there are no current seismic upgrading requirements for these types of old structures unless the structure is going under expansion or modification. However, prior to enlarging or correcting damaged areas, a more in depth investigation will need to be made to verify that seismic retrofit needs to be incorporated in the new work.

V. STRUCTURAL ASSESSMENT

A. OFFICE BUILDING

A-1. Description of Existing Structure

The office building is a one story standard house framing type structure. It consists of a wood joist and wood stud structure whose first floor is raised above the exterior grade. (See photographs OB-1 thru OB-4).

The roof structure also appears to be constructed of wood joists, wood sheathing and asphalt shingles. The walls consist of wood framing with wood siding as the exterior finish. The interior wall finish appeared to be wood paneling. The floor finish consisted a flexible 12" x 12" tile and the ceiling consists of a 2'-0" x 4'-0" hung ceiling suspended from a plywood ceiling which is nailed to the original ceiling joist.

A-2. Observations

Access to the floor and roof interstitial spaces was not available. However, when walking on the floor there was no creaking nor any other floor distress observed. From the exterior, it was observed that the roof joists appear to be deflecting between the supports. (See photograph OB-1)

The walls and ceiling did not show outward signs of structural distress. The windows and doors, having been boarded up, and the roofing appearing to be in good condition, did not seem to have allowed water and the elements to penetrate the structure; therefore, the basic structure appears to be structurally sound.

A-3. Long Term Evaluations

Based on the observations made the building may still be made functional with some repair to the roof joists. Since this structure can be used, the seismic retrofit investigation will need to be made prior to correcting the present building deficiencies.

B. WHITE BUILDING

B-1. Existing Conditions

The "White Building" consists of three portions. The different parts will be referred to as **Part "a," "b", and "c"**.

Part "a"- The first of the building portions is a two story building that may have been used as an office space. It encompasses an area of approximately 21' - 0" x 36' - 0". The exterior bearing walls are constructed of 8" thick Concrete Masonry Units - (CMU). See photographs WB-1 thru WB-5 for viewing the elevations.

The second floor and roof are constructed of 2" x 10" and 2"x 8" wood joists. The joists span East/West between the exterior CMU bearing walls and two 8" x 11 1/4" heavy timber wood girders. The wood girders are spanning North/South and are equally spaced between exterior bearing walls. See photograph WB-8 , WB-11, and WB-12 for framing.

The floor and roof sheathing consists of 1 x 6 wood planks which span between the joists. See photograph WB-8 for planks.

Fire retardant wood "blocks" laid on the wood sheathing appear to be the floor finish. (See photograph WB-7.)

Exterior steel stairs which extend from the grade to the 2nd floor, are located on the East and West elevations. (See photographs WB-3, WB-9 and WB-10)

Part "b"- The second portion of the White Building is adjacent and attached to the two story structure. The one story structure appears to originally have been used as a shower and locker room. The size of the foot print is approximately 20' - 0" x 30' - 0". The structure of this portion is framed similarly to Part "a". The roof joists span east/west between the CMU walls and the heavy timber girders. The roof sheathing consists of 1" x 6" planks which span between the joists. (See photograph WB-11 and WB-12)

The ground floor consists of a concrete slab on grade.

Part "c"- The third portion of the White Building, encompasses an area bound by one side whose length is 55' - 0" long by a width of 20' - 0". It consists of 5 frames located at approximately 11' - 0" centers. The frames consist of 2-2 x 8 beam members with a build up column measuring 6" x 8" between the 2 x 8 members. Knee bracing was provided in the plane of the frame at every column and between every frame. (See photograph WB-19 and WB-20) The frames slope from East to West creating a slope for the roof. See photograph WB-8 for roof slope.

Part "c"- Continued

The roof consists of 2 x 4 roof joists spanning between the bents at 24" on center. A corrugated metal deck spans between the joists. (See photograph WB-19)

The South elevations are also enclosed by the use of corrugated metal siding spanning vertically. (See photograph WB-4) The roof changes slope but appears to be constructed in the same type as the rest of this area. The floor consists of 3 1/2" x 3 1/2" x 2" deep treated wood blocks laid on the compacted fill underlayment.

B-2. Observations

Part "a"- All of the exterior masonry bearing walls show signs of distress. Cracks in the mortar joints between the CMU as well as through the block units were observed. Photographs WB-1, WB-3, WB-5, and WB-6 show the elevations of the "a" portion. The cracks appear throughout all of the elevations.

The cracks vary from hairline cracks to cracks up to approximately 1/2" wide as shown in photograph WB-9. It is difficult at this time to determine what caused the cracking in the bearing walls. The cracks may be due to the brittleness of the CMU walls. They were probably not designed for a seismic area. Due to having reinforcement within the walls no ductility was built into them and any tremors would crack the walls.

The first floor slab-on-grade was littered with debris but the accessible portions showed cracking.

The second floor was found to have water damage. The second floor block finish appears to have gotten wet, expanded and buckled. (See photograph WB7.) From below the floor the sheathing was observed to be entirely rotted through due to the water penetration. The joists in some areas were also found to be damaged. These areas have reduced structural capacity and have lost their full structural integrity. (See photographs WB-8, WB-11, and WB-12.)

Part "b"- The one story locker and shower room appears to have the same damage as the two story structure. The parapets above the roof along with the East and West elevations show the extent of the CMU cracks. (See photographs WB-9, WB-10, WB-13) The roof area has deteriorated in the same manner as the adjacent building. (See photographs WB-11, WB-12)

The steel stairs on the East elevation, (photograph WB-3) and the West elevation, (photograph WB-10) are severely rusty as shown on photograph WB-16. The treads and stringers have deteriorated and rusted entirely thru the steel.

Part "c"- The third portion of this structure was found to be deteriorated. The frames supporting the walls and roof showed signs of distress. One overhead door on the East elevation was found to be broken and was off of its tracks. One overhead door was found to function normally. Windows were missing and openings boarded up with plywood. The wood fascia was found to have been rotten. The floor was found to have had most of the wooden blocks removed and only soil underlayment remained.

B-3. Evaluation of Long Term Integrity

Based on the observations made and noted, the various portions of structure making up this building are safety hazards. If left as they are, they will deteriorate further and with the additional weathering will cause additional safety hazards. It is therefore recommended that the White building be demolished.

C. Boiler Building

C-1 Existing Structure

The Boiler Building is a two story 12" thick bearing wall structure with timber roof and concrete floor slabs. Access to the building was not possible due to its unsafe condition.

C-2 Observations

The majority of the masonry walls and the supporting roofs have collapsed. Three of the existing stacks are guy wired to keep them from collapsing. (See photographs B-1 thru B-6)

C-3 Long Term Evaluation

Due to the fact that the majority of the building walls and all but a portion of the roof has collapsed, the remainder of the building should be removed so that none of the weakened walls or stacks could injure anyone when they collapse.

D. Transite Building

D-1 Description of Existing Structure

The Transite Building is a one story heavy timber structure. The footprint encloses an area of approximately 80'-0" long by 60'-0" wide. The main axis of the building is in the North-South direction. See photographs TB-1 thru TB-5 for exterior elevations.

The structural system consist of 3 rows of columns, 5 columns per row. One exterior row of columns occurs on the East elevation. One approximately 40'-0" west of the first set of columns and a third set of columns at approximately 14'-0" which coincides with the exterior west elevation. Each column is an approximately 12" diameter telephone pole driven into the ground . (See photograph TB-11)

The poles appear to be acting as a cantilever to provide stability to each of the poles and thereby to the entire building. Connected to the tops of each pole in the North/South direction are heavy timber rectangular beams. Two steel rods appear to tie the East columns to the center row of columns. The top of the girders at the East and center appears to be approximately 25'-0" above the ground. The top of the girders along the West elevation appears to be approximately 21'-0" above the ground.

The roof structure consists of rafters spaced at approximately 4'-0" O.C.. The rafters between the east elevation and the central row of columns are forming a gable roof. A row of collar beams were located between these rafters. An extension of the gable slope from the central girders was created to the West support girders. The rafters are forming a lean-to roof. See photograph TB-2 of the north elevation and photograph TB-4 for the interior framing.

Wood sheathing spans between the rafters and Asphalt roofing.

The wall enclosures consist of 2 x 6 horizontal framing at approximately 4'-0" on center (O.C.) vertically spaced and connected to the 12" diameter columns at 20' - 0" O.C. (See photograph TB-9 and TB-10.) Between the 2 x 6 members are 2 x 4 vertical at \pm 2'-0" O.C. The two sets of members form a grid for attaching 4'- 0" x 8' - 0" transite sheets.

The floor is constructed of compacted grade under treated wood blocks laid side by side.

D-2 Observations

The following observations were noted:

As can be seen in the elevations on photographs TB-1 thru TB-5,

- a. Many of the wall panels which form the building enclosure appear to be broken. The deterioration allows water and other elements to penetrate the interior structure and deteriorate the interior.
- b. Many of the original enclosure panels on the West elevation appear to have been replaced with plywood sheets. The plywood sheets are rotting.
(See photograph TB-1)
- c. Photograph TB-5 shows that the ends of the rafters on the West elevation are showing signs of deterioration due to weathering. The ends are cracked, rotted, and salts can be seen on the surface of the members. All the deterioration mentioned reduces the bearing of the rafters of the spandrel beams. Similar conditions occur on the East elevation.
- d. A number of rafters in the South-west corner of the roof failed. The rafters were found to have horizontal splits at the ends over their supports.
- e. Both East and West elevations appear to show that the eave line below the roof line is not horizontal. The line is undulating which suggest that the roof rafters supports are distressed.

Photographs TB-7 thru TB-9 show that the spandrel beam which is supporting the rafters which form the eave line noted above, is deflecting between the columns. As the photos show the high points of the girders occur at the columns and the low points occur at the center of the spandrel girder. Theses high and low points are reflected in the eaves of the West and East elevations - photograph TB-10 shows the same deflected spandrel on the East elevation.

- f. The interior girder line is also showing a permanent deflection. (See photographs TB-7, TB-8 and TB-9.) The high point of the girder occurs above the column support and the low point occurs at / or about the center span. The appearance is similar to the spandrel condition.
- g. The floor construction appears to be disintegrating. Piles of wood blocks appear to be littering the floor. The underlayment is exposed and open to the weather and to further damage. (See photograph TB-11).

D 3- Long Term Evaluation

As observed, the main girders which support the roof, both at spandrels at the eave lines, as well as the center of the girders, seem to have permanent deflection set into them.

The magnitude of the permanent deflections, observed in the girders suggest that they are over stressed for their size, since the deflection appears to be greater than a normal deflection would be. A normal deflection would hardly be noticed.

At this time it is not clear which of the potential causes is creating the excessive deflection; however, based on the observations made, it is our opinion that the girders are deflecting excessively and are showing signs of major distress.

We have also noted that a number of rafters have been observed to have horizontal splits. These members have lost most of their capacity to support the design loads but have sufficient capacity to support the present, non-fully loaded condition. These rafters, if not repaired, will collapse as soon as the fully designed loads are reached.

It is therefore our opinion that due to the fact that the girders which support the roof appear to be over stressed and a number of the rafters were observed cracked, the roof structure should be reinforced if additional life capacity is desired for this structure. If the building is not repaired in the near future, then the deflection will probably increase to the point that the girders and other rafters will collapse. In the long term the building is hazardous, and should be demolished. Due to extensive repairs needed, it would not be economical to repair this structure.

E Creosote Treatment Building

E-1 Description of Existing Structure

The Creosote treatment Building is a one story structure covering an area approximately 100' - 0" long x 25' - 0" wide. The structural system consists of wood frames spanning East/West and spaced approximately 9' - 0" O.C. The frame consists of 6" x 6" timber columns, and a 2" x 14" beam which spans between the columns. A knee brace is located at almost all of the column/ beam connections.

A beam along the North/South axis of the building consisting of 2 - 2"x 12" treated wood members are nailed to each side of the wood column. (See photographs CTB-4, CTB-5, and CTB-6)

The roof joists are made of 2" x 14" treated wood members located at approximately 3' - 0" O.C. The joists are spanning between the North/South beams.

Rafters consisting of 2" x 4" wood members spanning between the 2" x 14" wood beams are supporting corrugated opaque and translucent panels. The roof is provided with a slope by having the top of the column along the West elevation higher by \pm 1'-4" above the East elevation columns. See North elevation photograph CTB-3.

The perimeter enclosure consists of wood framing spanning horizontally between the columns. Pre-finished metal siding is spanning vertically between the horizontal wood members. (See photograph CTB-4)

Located in the West elevation is an overhead door, and a number of boarded-up window openings. (See photograph CTB-1)

The East elevation contains overhead door openings as well as man door openings. (See photograph CTB-2)

The floor consists of a concrete slab-on grade. (See photograph CTB-8) The columns on the East side are embedded into the concrete slab. The columns on the West side are located on a continuous wood bearing plate which is anchored to the supporting sub-structure. (See photograph CTB-7 and CTB-9)

A pipe support system was constructed to support large pipes. The system is independent of the main building frame.

E-2 Observations

The pre-finished metal siding wall panels show signs of rusting and many panels of siding are missing. The gutter along the West elevation is hanging from the edge of the roof. The overhead door is broken. The openings on the East elevations did not have any doors; they have completely deteriorated.

The slab-on-grade has cracked and deteriorated.

Many of the columns which form the vertical support as well as the stability of the structure were observed as follows:

- 1) The plates which act as bearing plates for the columns are deteriorated and do not seem to be able to support the column loads. (See photograph CTB-7)
- 2) A number of columns have major splits which telescoped through the connecting bolt. The split at the bolt location eliminates any uplift capacity. (See photograph CTB-9)
- 3) The columns which are embedded into the concrete slab, show signs of salt deterioration in the lower portion of the posts and thereby have considerably reduced capacity of the wood anchored. (See photograph CTB-8)

The roof members were observed to have the following deficiencies:

- 1) Most of the 2" x 14" roof members which span the width of the building are showing signs of permanent deflection. This indicates that the various loads on the member are larger than allowed or that the members have been weakened and the loads are over-stressing the members.
- 2) A number of roof members were found to have failed. Photograph CTB-5 and CTB-6 shows the roof joists with horizontal splits. The remaining roof joists are not capable of supporting the required design.
- 3) Photograph CTB-5 also shows the 2" x 6" knee brace separating the 2" x 4" roof member. This failure reduces the brace from stabilizing the structure under wind and seismic loading.

E-3 Long Term Evaluation

From the observation noted, it seems that if this structure were to be rehabilitated, the following would need to be replaced:

- 1) Many of the roof joists.
- 2) Most of the columns
- 3) All of the siding and roofing
- 4) Slab-on-grade would need to be upgraded

If the building were to be left untouched, the structure would probably collapse. As noted, most joists are showing signs of excessive deflection. This is a first indication of collapse and a few have already cracked. Also noted are the columns which show signs of deterioration due to moisture penetration and rot. **The building as observed is a hazard and should be removed.**

F- Silos

F-1 Description of existing structure

Two Silos are located on the southern end of the site. At the time of the field review, they were almost empty. According to Bill Schaefer of E & E, the silos presently are filled with a few feet of clay which the Jennison-Wright Corporation used in the production of driveway sealer.

The diameter of the Silos appear to be 15'-6" and their heights appear to be approximately 35'-0".

The walls are constructed of 4" thick blocks laid in a circular pattern. Tie rods are located at various spacings along the height of the Silos. The rods are utilized to tie the individual blocks into a cylinder. A finish coat of plaster appears to have been applied to the inside and outside of the tile. (See photographs S-1, S-2, S-3, and S-4)

The roofs of the Silos were constructed of light steel bar joists spanning the 15'-6" width. Metal deck spans between the block walls and the joists.
(See photograph S-5)

On the North faces of each Silo there are access openings along with tracks for sliding doors. On the side of each Silo there is an access ladder which started at approximately 10'-0" from grade and extended to the roof of the Silos. Around the roof of each Silo there are steel hand rails. The rails consisted of vertical supports and two rods between the verticals.

F-2 Observations

The following items were observed (See photographs S-1, S-2, S-3, S-4, and S-5:)

- a. Many of the tiles were cracked.
- b. Mortar joints between the tiles appear to have cracked.
- c. Many of the tiles had rust marks on their faces. This indicates that the steel ties which are keeping the Silo together are rusting and deteriorating. The rust marks are due to the moisture dripping from the rods onto the face of the Silo.
- d. Holes in the tile enclosure were observed in both of the Silos.
- e. The ladders are showing signs of rusting.
- f. The handrails at the top of the Silos are not functional. Many of the rods which are threaded through the vertical supports are loose and hanging from the supports.

F-2 Observations - Continued

- g. The western Silo appears to be sloping towards the West. This might be due to the foundation settling and thereby providing uneven bearing.
- h. The steel frames around the doorways are rusted. Delamination of the steel has started to deteriorate the frame. (See photograph S-4)

F-3 Long Term Evaluation

Since the Silos are presently showing signs of deterioration, they will deteriorate additionally if no repairs are performed soon. The cracks and holes in the tile will allow water to enter the tile and through "freeze - thaw" cycles, will damage the tiles further.

The metal rods which are tying the silos together will keep rusting until they will no longer be capable of providing the tension to keep the silos together. The doorways which are framed with steel will delaminate more.

The Silo which seems to be sloping will continue to slope and collapse eventually.

Without any remedial work, the deterioration will continue and the elements through rusting and the freeze - thaw cycles, the structure will collapse. The uncontrolled collapse could be hazardous.

The Silos have deteriorated significantly but are not in imminent danger of collapse. However, before they could be made reliably functional, extensive rehabilitation would be required. In our judgement, the Silos should also be removed.

ATTACHMENT 1

SITE LOCATION MAP

Rubinos & Mesia Engineers, Inc.
Jennison-Wright Site - Granite City
Structural Assessment of Site Buildings



SOURCE: USGS 7.5 Minute Series (Topographic) Quadrangle: Granite City, ILL.-MO., 1954, photorevised 1993.

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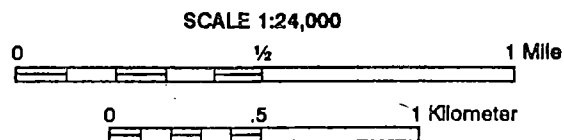


Figure 1 SITE LOCATION MAP

ATTACHMENT 2
BUILDING LOCATION ON SITE

Rubinos & Mesia Engineers, Inc.
Jennison-Wright Site - Granite City
Structural Assessment of Site Buildings

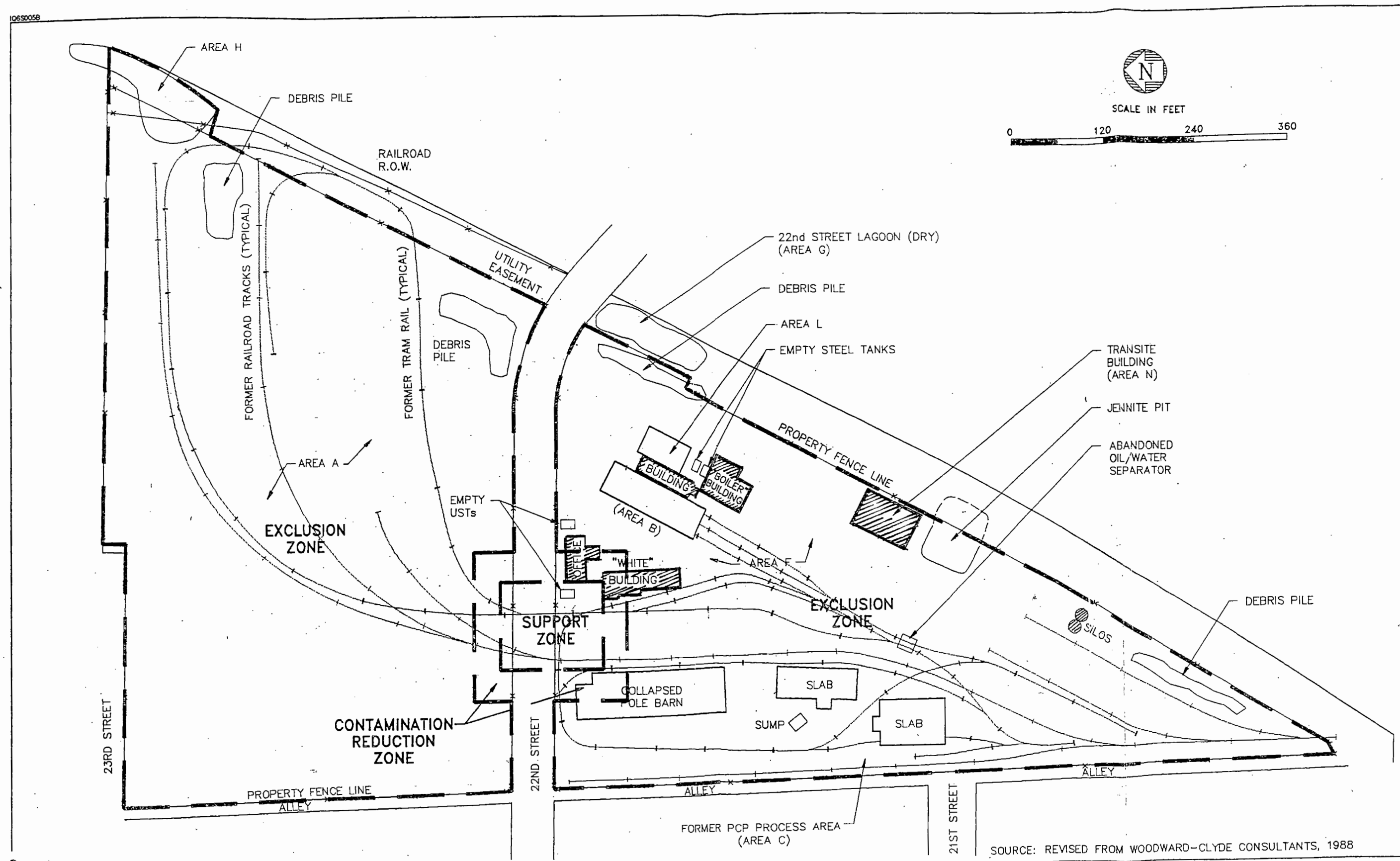


Figure 2

EXISTING BUILDING LOCATION

JENNISON-WRIGHT EE/CA
GRANITE CITY, ILLINOIS

ATTACHMENT 3

PHOTOGRAPHS OF EXISTING STRUCTURES

THE OFFICE BUILDING OB-1 to OB-4

THE WHITE BUILDING WB-1 to WB-20

THE BOILER BUILDING BB-1 to BB-6

THE TRANSITE BUILDINGTB-1 to TB-11

THE CREOSOTE TREATMENT BUILDING CTB-1 TO CTB-9

TWO SILOS S-1 TO S-5

*Rubinos & Mesia Engineers, Inc.
Jennison-Wright Site - Granite City
Structural Assessment of Site Buildings*

THE OFFICE BUILDING

*Rubinos & Mesia Engineers, Inc.
Jennison-Wright Site - Granite City
Structural Assessment of Site Buildings*

Office Building - North Elevation
Note roof deflection between high points

Photograph OB-1



Photograph OB-2

Office Building - South Elevation



Office Building - West Elevation

Photograph OB - 3



Photograph OB - 4

Office Building - East Elevation



THE WHITE BUILDING

*Rubinos & Mesia Engineers, Inc.
Jennison-Wright Site - Granite City
Structural Assessment of Site Buildings*

White Building - Part "a" West Elevation
Showing cracks in CMU exterior walls

Photograph WB-1



Photograph WB-2

White Building - Part "a" - North Elevation
Showing cracks in exterior CMU Walls.



White Building - Part "a" - East Elevation
showing cracks in CMU exterior

Photograph WB-3



Photograph WB-4

White Building - Part "a" & "c" South Elevation showing:
a: South elevation of part "b"
b: Roof slopes of part "c"



White Building -Part "a" - Partial South-West elevation at Second floor -showing cracked exterior masonry walls.

Photograph WB-5



Photograph WB-6

White Building -part "a"- Partial South West elevation at 2nd floor s showing cracked exterior masonry walls



White Building -Part "a" -

Showing buckled end floor -treated wood block finish

Photograph WB-7



White Building -Part "a" -interior showing:

- a: Typical floor/roof joist framing to
- b: Timber girder
- c: Water damaged joists & plank sheathing.

Photograph WB-8



White Building - Part "b" - East elevation
showing cracks in CMU exterior walls

Photograph WB-9



Photograph WB-10

White Building - Part "b" - West elevation
showing cracks in CMU exterior walls.



White Building-Part "a" & "b"-interior showing:

a - Roof / Floor joists

b - Roof / Floor girder

Photograph WB-11



White Building - Part "a" & "b" - interior showing:

a - Deterioration of decking

b - Deterioration of Joists

Photograph WB-12



White Building -Part "b"-Parapet showing:
a - Cracks in CMU
b - Deteriorated skylight support-skylight missing

Photograph WB-13



Photograph WB-14

White Building-Part "b"-interior showing:
Deteriorated skylight support & missing skylight.



White Building -Part "a"-East face showing:
a - Large opening in wall.
b - Delaminated Ceiling

Photograph WB-15



Photograph WB-16

White Building -Part "b"
Showing rusted exterior stairs



White Building -Part "c"- West elevation

Photograph WB-17



White Building-Part "c"-East elevation showing:

- a - Deteriorated Facia
- b - Deteriorated Doors
- c - Deteriorated Siding

Photograph WB-18



White Building -Part "c" - interior showing:

a - Roof framing

b - Stability brace in East / West direction

Photograph WB-19



White building - Part "c"- interior showing :

a - Roof framing

b - Stability brace in North/South direction

Photograph WB-20



THE BOILER BUILDING

*Rubinos & Mesta Engineers, Inc.
Jennison-Wright Site - Granite City
Structural Assessment of Site Buildings*

Boiler Building - South Elevation

Photograph BB-1



Photograph BB-2

Boiler Building - West elevation



Boiler Building - Southwest elevation

Photograph BB-3



Photograph BB-4

Boiler Building - North elevation



Boiler Building - East Elevation

Photograph BB-5



Photograph BB-6

**Boiler Building -
Deteriorated roof over remaining portion of East elevation**



THE TRANSITE BUILDING

*Rubinos & Mesia Engineers, Inc.
Jennison-Wright Site - Granite City
Structural Assessment of Site Buildings*

Transit Building - West elevation:
a - Permanent deflection of eave support.

Photograph TB-1



Photograph TB-2

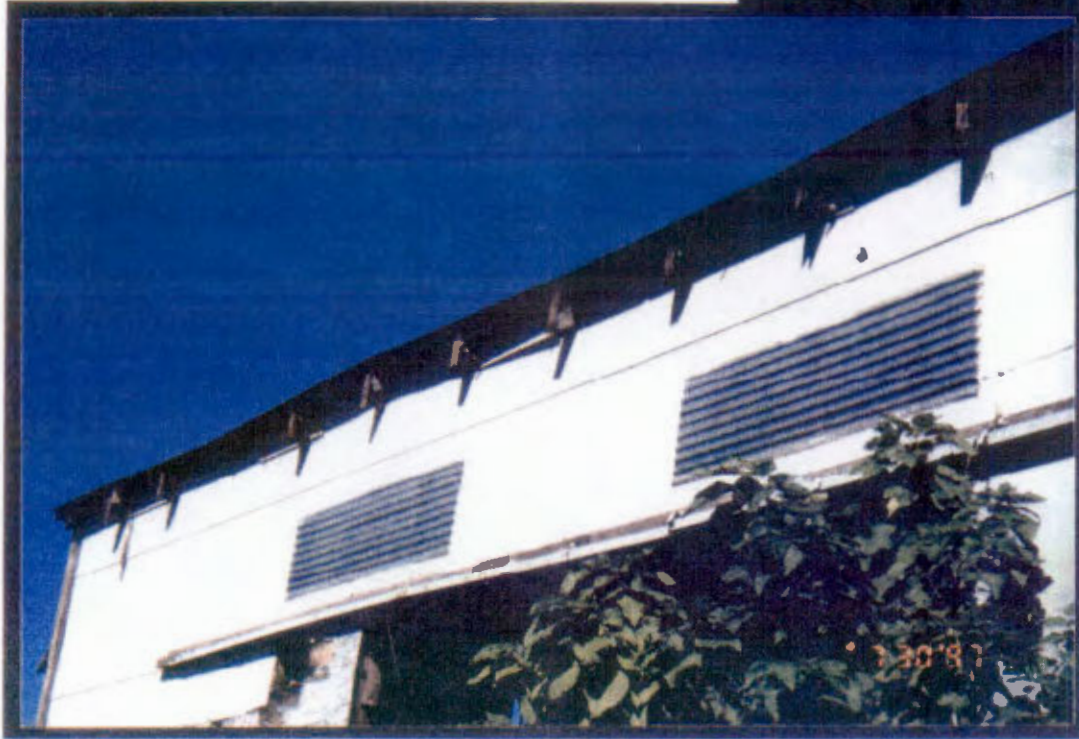
Transit Building - North Elevation



Transit Building - West elevation eave line -

- a - Undulation of eave beam support
- b - Deteriorated end of rafters

Photograph TB-5



Transit Building - interior roof looking South:

- a - Three rows of columns & girders
- b - Gable framing with Collar Beam at main bay
- c - Lean to framing in third bay

Photograph TB-4



Transit Building - Northwest interior corner:

- a - Permanent deflection in top West wall
- b - Permanent deflection in interior girder

Photograph TB-7



Transit Building - West interior:

- a - Permanent deflections of top West wall
- b - Permanent deflection in interior girder

Photograph TB-8



Transit Building - Southwest interior corner:

- a - Permanent deflection in West wall eave girder
- b - Permanent deflection in exterior girder
- c - Major crack in rafter

Photograph TB-9



Transit Building - East interior elevation:

- a - Permanent deflections in exterior girder
- b - Replaced roof sheeting

Photograph TB-10





Photograph TB-11



Left:

Transit Building:

a - Typical column embedded into ground.

b - Treated wood blocks used as building floor finish.

THE CREOSOTE TREATMENT BUILDING

*Rubinos & Mesia Engineers, Inc.
Jennison-Wright Site - Granite City
Structural Assessment of Site Buildings*

Creosote Treatment Building - West elevation

Photograph CTB-1



Photograph CTB-2

Creosote Treatment Building - East elevation



Creosote Treatment Building - North Elevation

Photograph CTB-3



Photograph CTB-4

**Creosote Treatment Building -
Typical interior roof and frame construction**



Creosote Treatment Building -
Roof beam showing major horizontal split.

Photograph CTB-5



Photograph CTB-6

Creosote Treatment Building -
Roof beam showing major horizontal split.



Creosote Treatment Building -
Showing deteriorated frame plate.

Photograph CTB-7



Photograph CTB-8

Creosote Treatment Building -
Showing column base deterioration.





Photograph CTB-9



Left:

Creosote Treatment Building -
Showing column with split along
the grain which telescopes thru
bolt location, thereby destroying
any uplift capacity.

TWO SILOS

*Rubinos & Mesia Engineers, Inc.
Jennison-Wright Site - Granite City
Structural Assessment of Site Buildings*

Photograph S-1



Left
Silos - North elevation



Right.
Silos - South elevation

Photograph S-2



Photograph S-3

Silos - Top:

- a - Rusty opening frame
- b - Deteriorated Silo tile enclosure.



Left: Silos -

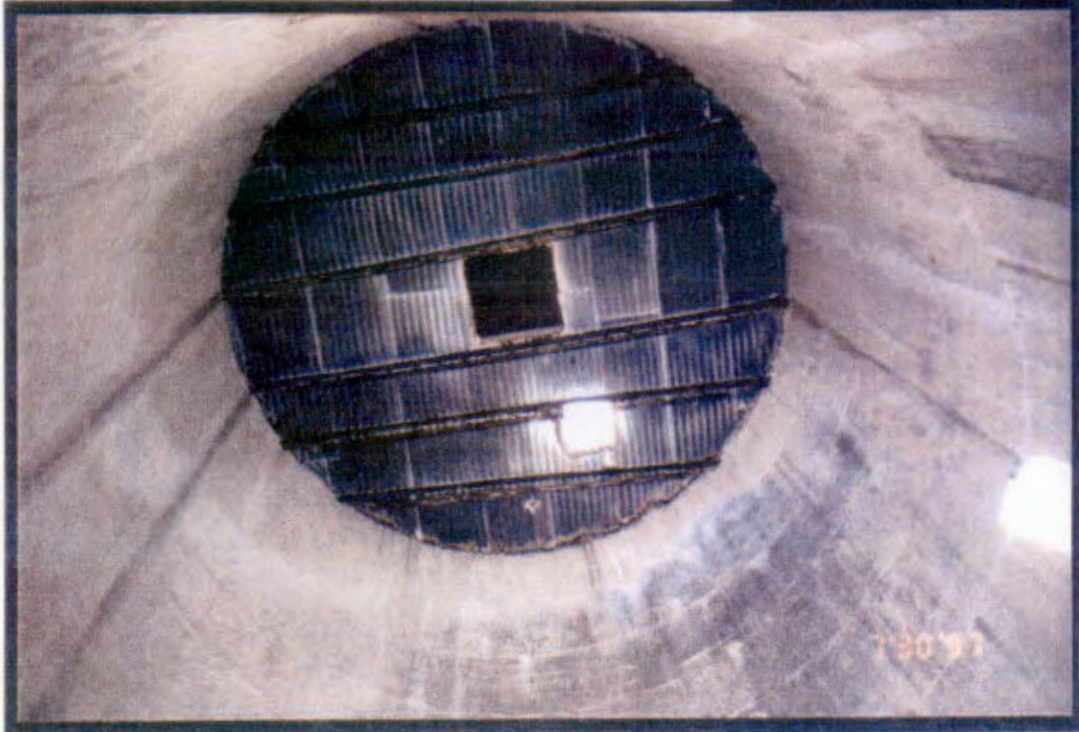
- a - Deteriorated Silo tile enclosure.
- b - Hole in Silo wall.

Photograph S-4

Silos -

- a - Silo roof construction
- b - Plaster type finish on inside surface

Photograph S-5



F

Asbestos Laboratory Report

ENVIRONMENTAL OPERATIONS, INC

INDUSTRIAL HYGIENE LABORATORY

BULK SAMPLE ANALYSIS

Laboratory Job No: B426

Turn Around: *10 DAY*

Client: Ecology and Environment, Inc.

Date Received: 09/16/97

Date Analyzed: 09/30/97

Lab Number	Sample Number	Asbestos Detected & Percentage	Fibrous Material & Percentage	Non Fibrous Mat. & Percentage
101042	<i>OBO1</i>	Chrysotile-02	Fibrous Glass-01	Vinyl-19 Quartz-04 Carbonates-74
	<i>Mastic</i>	NONE	Cellulose-09	Tar-82 Carbonates-09
101043	<i>OBO2</i>	NONE	Cellulose-99	Paint-01
101044	<i>BBO3</i>	Chrysotile-18	Cellulose-80	Carbonates-02
101045	<i>GB04</i>	NONE	Mineral Wool-99	Carbonates-01
101046	<i>BBO5</i>	Chrysotile-38	Cellulose-52	Carbonates-10
101047	<i>BBO6</i>	NONE	Fibrous Glass-22 Cellulose-09	Foil-58 Carbonates-11
101048	<i>TBO7</i>	Chrysotile-19	Cellulose-01	Quartz-15 Carbonates-65
101049	<i>TBO8</i>	NONE	Cellulose-99	Carbonates-01
101050	<i>WBO9</i>	NONE	Cellulose-04	Gypsum-15 Quartz-03 Carbonates-78
101051	<i>WB10</i>	Chrysotile-16	Cellulose-09	Carbonates-75

101052	WB11	Amosite-08	Fibrous Glass-90	Carbonates-02
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Comments: _____

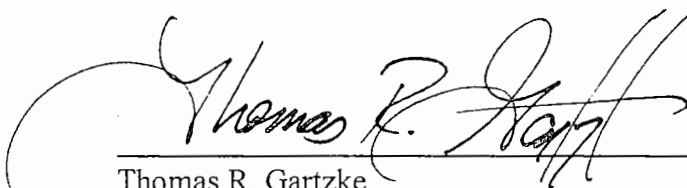
* Upper Detection Limit is 100 Percent

*The Lower Detection Limit is less than 1 Percent

Method: EPA/600/R-93/116 JULY 1993

Method for the determination of Asbestos in Bulk Building Materials
Environmental Operations, Inc. is a successful participant in the AIHA-BAQA Proficiency Program

Laboratory Code: 10327



Thomas R. Gartzke
Industrial Hygiene Laboratory Manager

Environmental Operations, Inc. Environmental Consulting and Remediation
757 South Second Street St. Louis, MO 63102-1617
314-436-0370 FAX 314-436-2900

ENVIRONMENTAL OPERATIONS, INC
INDUSTRIAL HYGIENE LABORATORY

BULK SAMPLE ANALYSIS

Laboratory Job No:
Turn Around: *RUSH*
Location: Jennison Wright

Date Analyzed: 12/11/97
Client: Ecology and Environment Inc.

Lab Number	Sample Number	Asbestos Detected & Percentage	Fibrous Material & Percentage	Non Fibrous Mat. & Percentage
102676	PB-12	NONE	Cellulose-12	Carbonates-06 Tar-82
102677	WB-13	NONE	Cellulose-15	Carboantes-08 Tar-77
102678	BB-14	NONE	Cellulose-14	Carbonates-10 Tar-76

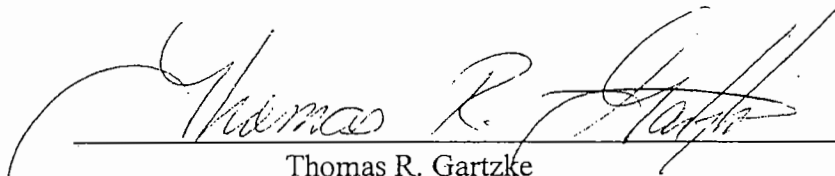
Comments: _____

* Upper Detection Limit is 100 Percent

*The Lower Detection Limit is less than 1 Percent

Method: EPA/600/R-93/116 JULY 1993
Method for the determination of Asbestos in Bulk Building Materials

Environmental Operations, Inc. is a successful participant in the AIHA-BAQA Proficiency Program
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Thomas R. Gartzke
Industrial Hygiene Laboratory Manager

Environmental Operations, Inc. Environmental Consulting and Remediation
757 South Second Street St. Louis, MO 63102-1617
314/436/0370 FAX 314-436-2900

101042-101052

ecology & environment, inc.

PAGE 1 OF 3

PLM LABORATORY REQUEST FORM

PRIORITY:
(CHECK ONLY ONE)☐

24 Hr.

☐

48 Hr.

☐

72 Hr.

☐

5 Days

OTHER: 2 weeks

NAME Bill Schaefer

COMPANY Ecology & Environment, Inc.

ADDRESS 33 N. Dearborn

CITY, STATE, ZIP Chicago IL 60602

PHONE 312 578-9343

FAX 312 578-9345

PROJECT Jennison - Wright

700 W 32nd St.

Granite City, IL 62040

SAMPLING DATES 9/16/97

SAMPLED BY D. Tiebout

SAMPLER FILL IN THE SHADED BOXES BELOW

Sample #	Lab#	Sample Description	Asbestos Present/Type*	Other Fibrous Components	Other Nonfibrous Components
OB01		Office Bldg Floor Tile			
OB02		Office Bldg Ceiling Tile			
BB03		Boiler Bldg Corrugated Paper			
GB04		Green Bldg ^{Fibrous} White Pipe Insulation			
BB05		Boiler Bldg ^{Charley} White Pipe Insulation			
BB06		Boiler Bldg Pipe Wrap			
TB07		Transite Bldg Wall Board			
TB08		Transite Bldg Corrugated Paper			

*Asbestos includes the asbestiform varieties of chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite. A substance is considered asbestos containing material if it contains >1% asbestos.

COMMENTS:

D. Tiebout

RELINQUISHED BY

9/16/97

DATE

[Signature]

RECEIVED BY

09/16/97

DATE

CLIENT
NUMBER:

DATE
ANALYZED

ANALYZED
BY:

WHITE COPY: Lab Record; BLUE COPY: Client Copy

PLM LABORATORY REQUEST FORM

PRIORITY:
(CHECK ONLY ONE)☐

24 Hr.

☐

48 Hr.

☐

72 Hr.

☐

5 Days

OTHER:

2 weeks

NAME

Bill Schaefer

COMPANY

Ecology & Environment, Inc.

ADDRESS

33 W. Dearborn

CITY, STATE, ZIP

Chicago IL 60602

PHONE

312 578-9243

FAX

312 578-9345

PROJECT

Jennison-Walsh700 W. 22nd St.Granite City IL 62040

SAMPLING DATES

9/16/97

SAMPLED BY

Dean Tiebout

SAMPLER FILL IN THE SHADED BOXES BELOW

Sample #	Lab#	Sample Description	Asbestos Present/Type*	Other Fibrous Components	Other Nonfibrous Components
WB09		White Bldg Ceiling Tile			
WB10		White Bldg Pipe Insulation			
WB11		White Bldg Boiler Jacket			

*Asbestos includes the asbestiform varieties of chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite. A substance is considered asbestos containing material if it contains >1% asbestos.

COMMENTS:

RELINQUISHED BY

Dean Tiebout

DATE

9/16/97

RECEIVED BY

[Signature]

DATE

09/16/97CLIENT
NUMBER:DATE
ANALYZEDANALYZED
BY:

ENVIRONMENTAL OPERATIONS

757 SOUTH SECOND STREET
ST. LOUIS, MO 63102-1617

(314)-436-0370 PHONE
(314)-436-2900 FAX

**CHAIN OF CUSTODY
RECORD**

102676- 102678

PROJECT NAME	JENNISON-WRIGHT	LAB NAME	EO
PROJECT NUMBER	IQ6030	LAB LOCATION	ST LOUIS, MO
SAMPLERS	BILL SCHAEFER E&E	BIOLOGY & ENVIRONMENT	

SAMPLE NUMBER	DATE	TIME	MATRIX	ANALYSIS TYPE	COMMENTS
PB12	12/10/97	0910	ROOFING	BULK ASBESTOS	
WB13	12/10/97	0915	ROOFING	BULK ASBESTOS	
BB14	12/10/97	1220	ROOFING	BULK ASBESTOS	
APPX - 11-2-2008-1 E#E					
DH 2 11					
DA 2 11					
DD 1					
DF 11					
DG 2 11					
DH 1 7					
TPTO - 11-2-2008-1					
11-2-2008-1					

RELINQUISHED BY:

SIGNATURE	DATE	TIME	SIGNATURE	DATE	TIME
Bill Schaefer	12/10/97	1900	Tom Schaefer	12/11/97	10:30 AM

RECEIVED BY:

SEND RESULTS AND INVOICE TO :
PHONE (312) 578-9243

BILL SCHAEFER
ECOLOGICAL AND ENVIRONMENT, INC.
33 N. DEARBORN ST. 9TH
CHICAGO, ILL. 60610

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Analytical Data Summary Tables



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**CLP Surface Soil
Samples—Gridded**

Table G-1

CLP SURFACE SOIL SAMPLES - GRIDDED
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

Sample Station	JW-SS05	JW-SS10	JW-SS15	JW-SS20	JW-SS25	JW-SS30	JW-SS35	JW-SS39	JW-SS45	JW-SS50	JW-SS55	JW-SS60	JW-SS65	JW-SS70	JW-SS75	JW-SS80	JW-SS97	JW-SS98
Sample Depth (ft-BGS)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Sample Date	7/28/97	7/28/97	7/28/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/30/97	7/30/97	7/30/97	7/28/97	7/30/97
Metals (mg/kg)																		
Aluminum	7,520.0	6,200.0	15,200.0	11,300.0	17,000.0	7,840.0	22,800.0	14,200.0	26,100.0	11,500.0	5,840.0	8,400.0	6,110.0	5,890.0	5,210.0	6,810.0	16,200.0	5,680.0
Antimony	1.7 J	1.8 J	0.7 J	1.0 J	1.0 J	0.4 J	0.5 UJ	0.8 J	0.4 UJ	1.7 J	0.4 U	1.4	1.6	0.4 U	0.8	9.5	0.4 UJ	0.4 U
Arsenic	11.4	15.0	4.5	0.8 U	5.3	5.5	3.9	4.8	2.9	10.4	3.7	6.0	6.9	7.1	8.3	6.2	4.4	6.6
Barium	207.0	133.0	242.0	220.0	256.0	107.0	246.0	153.0	247.0	184.0	118.0	134.0	156.0	130.0	129.0	200.0	256.0	126.0
Beryllium	1.3 J	0.4 J	3.4	0.7 J	3.3	0.4 J	4.7	2.4 J	5.2	2.4	0.9	1.9	0.5	0.6	0.5	1.0	3.2	0.5
Cadmium	4.6	3.1	0.8	1.6	5.1	0.5	1.6	0.9	0.7	1.3	0.2 U	1.1	0.2 U	0.2 U	0.2 U	2.9	0.9	0.2 U
Calcium	27,600.0	8,650.0	69,300.0	173,000.0	122,000.0	27,900.0	160,000.0	166,000.0	177,000.0	56,400.0	160,000.0	162,000.0	2,830.0	3,790.0	2,570.0	9,610.0	74,700.0	4,400.0
Chromium	15.7 J	34.2 J	36.2 J	618.0 J	278.0 J	12.5 J	126.0 J	41.4 J	200.0 J	140.0 J	1,270.0	87.3	10.4	13.5	9.6	19.7	40.4 J	13.2
Cobalt	5.3	5.7	4.0	1.5	3.6	6.3	2.4	4.0	1.6	6.2	2.5	2.6	6.4	6.2	5.4	6.9	3.8	6.1
Copper	38.5	34.6	21.1	38.9	63.6	15.8	73.0	17.2	22.4	63.2	43.3	168.0	14.4	12.7	11.5	55.3	22.4	12.9
Cyanide	3.0	1.8	7.7	1.8	3.5	0.2	3.0	1.9	3.5	6.7	0.2 J	1.6	0.2 J	0.2 J	0.2 J	0.6 J	11.6 J	0.2 J
Iron	20,000.0	20,900.0	18,800.0	108,000.0	52,200.0	21,100.0	31,000.0	24,000.0	36,600.0	44,200.0	132,000.0	23,600.0	12,200.0	12,300.0	16,400.0	24,000.0	19,200.0	11,700.0
Lead	204.0	176.0	90.6	97.9	300.0	25.0	152.0	30.2	96.0	127.0	108.0	251.0	38.3	37.4	50.9	320.0	91.7	37.8
Magnesium	2,780.0	2,300.0	4,930.0	19,000.0	28,200.0	3,750.0	40,300.0	15,600.0	46,000.0	8,960.0	39,100.0	15,600.0	2,130.0	2,280.0	1,700.0	2,450.0	6,190.0	2,300.0
Manganese	2,300.0	730.0	2,640.0	24,700.0	7,490.0	436.0	4,220.0	1,410.0	5,420.0	3,060.0	21,500.0	2,160.0	294.0	388.0	330.0	674.0	2,640.0	370.0
Mercury	0.1 J	0.2 J	0.05 U	0.05 U	0.05 U	0.05 U	0.06 U	0.2 J	0.05 UJ	0.05 UJ	0.05 U	0.06	0.05 U	0.05 U	0.05 U	0.2	0.05 U	0.05 U
Nickel	17.4	16.8	11.0	5.4	18.4	21.4	12.8	14.8	5.4	26.9	10.3	12.5	12.1	12.2	8.6	15.8	10.2	11.6
Potassium	1,160.0	1,090.0	1,420.0	1,090.0	2,000.0	1,060.0	2,370.0	1,640.0	2,660.0	1,550.0	587.0 J	1,090.0 J	1,530.0 J	1,380.0 J	1,230.0 J	1,550.0 J	1,720.0	1,330.0 J
Selenium	2.2 J	1.5 J	1.0 J	0.6 UJ	0.6 UJ	0.6 UJ	1.6 J	1.7 J	0.6 UJ	0.9 J	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	1.1 J	0.6 U
Silver	0.3 J	0.2 J	0.2 UJ	0.9 J	0.7 J	0.2 UJ	0.3 J	0.2 UJ	0.2 UJ	0.3 J	1.0 J	0.3 J	0.2 UJ	0.2 UJ	0.2 UJ	0.2 J	0.2 UJ	0.2 UJ
Sodium	713.0	304.0	790.0	762.0	1,540.0	319.0	2,200.0	1,210.0	2,100.0	928.0	549.0	855.0	212.0	232.0	218.0	327.0	1,000.0	227.0
Thallium	2.4	1.5	1.4	0.6 U	3.1	1.5	1.7	2.3	2.5	2.8 J	2.1	1.2	0.9	1.1	1.6	0.6 U	1.4	0.6 U
Vanadium	65.0 J	43.2 J	42.9 J	653.0 J	253.0 J	23.5 J	139.0 J	64.6 J	286.0 J	98.4 J	656.0	101.0	18.5	20.7	16.0	25.2	62.0 J	19.8
Zinc	617.0	525.0	174.0	328.0	583.0	136.0	250.0	105.0	121.0	347.0	303.0	325.0	75.5	291.0	190.0	863.0	183.0	296.0

Table G-1

CLP SURFACE SOIL SAMPLES - GRIDDED
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

Sample Station	JW-SS05	JW-SS10	JW-SS15	JW-SS20	JW-SS25	JW-SS30	JW-SS35	JW-SS39	JW-SS45	JW-SS50	JW-SS55	JW-SS60	JW-SS65	JW-SS70	JW-SS75	JW-SS80	JW-SS97	JW-SS98
Sample Depth (ft-BGS)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Sample Date	7/28/97	7/28/97	7/28/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/30/97	7/30/97	7/30/97	7/28/97	7/30/97
Volatile organics (µg/kg)																		
1,1,1-Trichloroethane	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
1,1,2,2-Tetrachloroethane	11.0 UJ	10.0 R	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
1,1,2- Trichloroethane	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
1,1-Dichloroethane	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,1-Dichloroethene	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichloroethane	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichloroethene (total)	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichloropropane	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
2-Butanone	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Hexanone	11.0 UJ	10.0 R	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 UJ	10.0 UJ	10.0 U	10.0 UJ
4-Methyl-2-Pentanone	11.0 UJ	10.0 R	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
Acetone	7.0 J	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzene	2.0 J	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
Bromodichloromethane	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
Bromoform	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
Bromomethane	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Carbon Disulfide	2.0 J	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Carbon Tetrachloride	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
Chlorobenzene	11.0 UJ	10.0 R	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
Chloroethane	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chloroform	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chloromethane	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
cis-1,3-Dichloropropene	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
Dibromochloromethane	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
Ethylbenzene	2.0 J	10.0 R	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
Methylene Chloride	2.0 J	5.0 J	2.0 J	1.0 J	1.0 J	2.0 J	12.0 U	12.0 U	10.0 U	10.0 U	10.0 U	10.0 U	2.0 J	10.0 U	2.0 J	10.0 U	10.0 U	3.0 J
Styrene	11.0 UJ	10.0 R	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
Tetrachloroethene	11.0 UJ	10.0 R	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
Toluene	18.0 J	43.0 J	60.0	8.0 J	14.0	11.0 J	5.0 J	8.0 J	9.0 J	10.0 U	38.0	18.0	9.0 J	25.0	8.0 J	69.0 J	9.0 J	8.0 J
trans-1,3-Dichloropropene	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
Trichloroethene	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
Vinyl Chloride	11.0 UJ	10.0 UJ	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Xylene (total)	97.0 J	5.0 J	14.0 U	10.0 U	10.0 U	12.0 U	12.0 U	12.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	2.0 J	10.0 UJ	10.0 U	10.0 U

G1-3

Table G-1

CLP SURFACE SOIL SAMPLES - GRIDDED
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

Sample Station	JW-SS05	JW-SS10	JW-SS15	JW-SS20	JW-SS25	JW-SS30	JW-SS35	JW-SS39	JW-SS45	JW-SS50	JW-SS55	JW-SS60	JW-SS65	JW-SS70	JW-SS75	JW-SS80	JW-SS97	JW-SS98
Sample Depth (ft-BGS)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Sample Date	7/28/97	7/28/97	7/28/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/30/97	7/30/97	7/30/97	7/28/97	7/30/97
Semivolatile organics (ug/kg)																		
1,2,4-Trichlorobenzene	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
1,2-Dichlorobenzene	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
1,3-Dichlorobenzene	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
1,4-Dichlorobenzene	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
2,2'-oxybis(1-Chloropropane)	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
2,4,5-Trichlorophenol	90,000.0 U	8,600.0 U	2,300.0 U	1,700.0 U	8,500.0 U	2,000.0 U	9,600.0 U	10,000.0 U	8,400.0 U	8,500.0 U	850.0 U	1,700.0 U	870.0 U	860.0 U	860.0 U	8,700.0 U	8,600.0 U	860.0 U
2,4,6-Trichlorophenol	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
2,4-Dichlorophenol	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
2,4-Dimethylphenol	4,700.0 J	220.0 J	54.0 J	670.0 U	3,400.0 U	810.0 U	3,800.0 U	330.0 J	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
2,4-Dinitrophenol	90,000.0 U	8,600.0 U	2,300.0 U	1,700.0 U	8,500.0 U	2,000.0 U	9,600.0 U	10,000.0 U	8,400.0 U	8,500.0 U	850.0 U	1,700.0 U	870.0 U	860.0 U	860.0 U	8,700.0 U	8,600.0 U	860.0 U
2,4-Dinitrotoluene	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
2,6-Dinitrotoluene	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
2-Chloronaphthalene	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
2-Chlorophenol	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
2-Methylnaphthalene	55,000.0	690.0 J	180.0 J	670.0 U	500.0 J	87.0 J	280.0 J	3,000.0 J	3,300.0 U	440.0 J	340.0 U	61.0 J	350.0 U	340.0 U	340.0 U	3,500.0 U	190.0 J	340.0 U
2-Methylphenol	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
2-Nitroaniline	90,000.0 U	8,600.0 U	2,300.0 U	1,700.0 U	8,500.0 U	2,000.0 U	9,600.0 U	10,000.0 U	8,400.0 U	8,500.0 U	850.0 U	1,700.0 U	870.0 U	860.0 U	860.0 U	8,700.0 U	8,600.0 U	860.0 U
2-Nitrophenol	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
3,3'-Dichlorobenzidine	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
3-Nitroaniline	90,000.0 U	8,600.0 U	2,300.0 U	1,700.0 U	8,500.0 U	2,000.0 U	9,600.0 U	10,000.0 U	8,400.0 U	8,500.0 U	850.0 U	1,700.0 U	870.0 U	860.0 U	860.0 U	8,700.0 U	8,600.0 U	860.0 U
4,6-Dinitro-2-methylphenol	90,000.0 U	8,600.0 U	2,300.0 U	1,700.0 U	8,500.0 U	2,000.0 U	9,600.0 U	10,000.0 U	8,400.0 U	8,500.0 U	850.0 U	1,700.0 U	870.0 U	860.0 U	860.0 U	8,700.0 U	8,600.0 U	860.0 U
4-Bromophenyl-phenylether	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
4-Chloro-3-methylphenol	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
4-Chloroaniline	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
4-Chlorophenyl-phenylether	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
4-Methylphenol	2,200.0 J	180.0 J	88.0 J	670.0 U	3,400.0 U	810.0 U	3,800.0 U	540.0 J	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
4-Nitroaniline	90,000.0 U	8,600.0 U	2,300.0 U	1,700.0 U	8,500.0 U	2,000.0 U	9,600.0 U	10,000.0 U	8,400.0 U	8,500.0 U	850.0 U	1,700.0 U	870.0 U	860.0 U	860.0 U	8,700.0 U	8,600.0 U	860.0 U
4-Nitrophenol	90,000.0 U	8,600.0 U	2,300.0 U	1,700.0 U	8,500.0 U	2,000.0 U	9,600.0 U	10,000.0 U	8,400.0 U	8,500.0 U	850.0 U	1,700.0 U	870.0 U	860.0 U	860.0 U	8,700.0 U	8,600.0 U	860.0 U
Acenaphthene	34,000.0 J	710.0 J	34,000.0 J	60.0 J	750.0 J	810.0 U	790.0 J	5,800.0	240.0 J	180.0 J	340.0 U	38.0 J	350.0 U	340.0 U	340.0 U	510.0 J	36,000.0	340.0 U
Acenaphthylene	87,000.0	14,000.0	4,400.0	640.0 J	12,000.0	900.0	10,000.0	4,400.0	2,400.0 J	3,700.0	120.0 J	800.0	370.0	280.0 J	150.0 J	1,600.0 J	3,900.0	340.0 U
Anthracene	100,000.0	16,000.0	52,000.0	570.0 J	15,000.0	580.0 J	17,000.0	120,000.0	3,100.0 J	2,800.0 J	120.0 J	950.0	400.0	260.0 J	140.0 J	2,200.0 J	36,000.0	340.0 U
Benzo(a)anthracene	120,000.0	74,000.0	50,000.0	1,300.0	26,000.0	2,900.0	31,000.0	43,000.0	3,700.0	6,400.0	210.0 J	1,500.0	640.0	330.0 J	190.0 J	6,200.0	32,000.0 J	73.0 J
Benzo(a)pyrene	88,000.0	120,000.0	31,000.0 J	1,800.0	36,000.0	4,300.0	41,000.0	36,000.0	5,600.0	10,000.0	340.0	1,800.0	820.0	830.0	340.0	7,900.0	22,000.0	94.0 J

G1-4

Table G-1

CLP SURFACE SOIL SAMPLES - GRIDDED
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

Sample Station	JW-SS05	JW-SS10	JW-SS15	JW-SS20	JW-SS25	JW-SS30	JW-SS35	JW-SS39	JW-SS45	JW-SS50	JW-SS55	JW-SS60	JW-SS65	JW-SS70	JW-SS75	JW-SS80	JW-SS97	JW-SS98
Sample Depth (ft-BGS)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Sample Date	7/28/97	7/28/97	7/28/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/30/97	7/30/97	7/30/97	7/28/97	7/30/97
Semivolatile organics (µg/kg) - (Cont.)																		
Benzo(b)fluoranthene	90,000.0	220,000.0	42,000.0 J	3,600.0	59,000.0	7,600.0	68,000.0	46,000.0	20,000.0	20,000.0	760.0	2,700.0	1,500.0	1,400.0	540.0	8,600.0	22,000.0 J	130.0 J
Benzo(g,h,i)perylene	210,000.0	49,000.0	9,800.0 J	1,700.0	42,000.0	2,100.0	27,000.0	14,000.0	6,200.0	10,000.0	430.0	2,700.0	1,500.0	1,400.0	440.0	7,000.0	8,200.0	100.0 J
Benzo(k)fluoranthene	180,000.0	17,000.0	6,100.0	3,300.0	20,000.0	3,700.0	27,000.0	27,000.0	3,300.0 U	14,000.0	670.0	2,100.0	1,100.0	1,100.0	410.0	8,200.0	21,000.0	110.0 J
bis(2-Chloroethoxy)methane	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
bis(2-Chloroethyl) ether	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
bis(2-Ethylhexyl)phthalate	36,000.0 U	3,900.0 U	45,000.0 U	2,800.0 U	4,100.0 U	1,700.0 U	4,300.0 U	4,100.0 U	3,500.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
Butylbenzylphthalate	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	75.0 J	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
Carbazole	42,000.0 J	5,900.0	3,600.0	270.0 J	3,300.0 J	170.0 J	2,200.0 J	37,000.0	590.0 J	990.0 J	340.0 U	280.0 J	160.0 J	83.0 J	340.0 U	1,300.0 J	1,100.0 J	340.0 U
Chrysene	36,000.0 U	140,000.0	64,000.0	2,400.0	58,000.0	4,300.0	75,000.0	62,000.0	9,600.0	11,000.0	580.0	2,300.0	1,200.0	700.0	320.0 J	8,300.0	34,000.0	120.0 J
Di-n-butylphthalate	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
Di-n-octylphthalate	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
Dibenzo(a,h)anthracene	110,000.0	21,000.0	4,000.0	520.0 J	9,400.0	990.0	9,800.0	6,400.0	1,800.0 J	2,800.0 J	170.0 J	700.0	360.0	390.0	150.0 J	2,400.0 J	3,300.0 J	340.0 U
Dibenzofuran	32,000.0 J	1,300.0 J	2,300.0	59.0 J	1,200.0 J	120.0 J	760.0 J	8,000.0	200.0 J	600.0 J	340.0 U	75.0 J	32.0 J	340.0 U	340.0 U	3,500.0 U	900.0 J	340.0 U
Diethylphthalate	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
Dimethylphthalate	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
Fluoranthene	36,000.0 U	83,000.0	230,000.0	2,100.0	65,000.0	3,300.0	82,000.0	100,000.0	8,900.0	11,000.0	420.0	2,700.0	1,200.0	220.0 J	270.0 J	14,000.0	170,000.0	130.0 J
Fluorene	69,000.0 J	540.0 J	10,000.0 J	670.0 U	480.0 J	810.0 U	540.0 J	12,000.0	180.0 J	3,400.0 U	340.0 U	46.0 J	19.0 J	340.0 U	340.0 U	420.0 J	7,900.0	340.0 U
Hexachlorobenzene	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
Hexachlorobutadiene	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
Hexachlorocyclopentadiene	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
Hexachloroethane	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
Indeno(1,2,3-cd)pyrene	240,000.0	55,000.0	10,000.0 J	1,700.0	38,000.0	2,200.0	28,000.0	15,000.0	6,700.0	8,500.0	420.0	2,200.0	1,200.0	1,200.0	400.0	6,300.0	8,300.0	88.0 J
Isophorone	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
N-Nitroso-di-n-propylamine	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
N-Nitrosodiphenylamine (1)	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
Naphthalene	70,000.0	2,600.0 J	430.0 J	76.0 J	1,500.0 J	100.0 J	840.0 J	8,700.0	3,300.0 U	730.0 J	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	610.0 J	340.0 U
Nitrobenzene	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	4,100.0 U	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
Pentachlorophenol	90,000.0 U	8,600.0 U	110,000.0 U	1,700.0 U	8,500.0 U	2,000.0 U	9,600.0 U	10,000.0 U	8,400.0 U	8,500.0 U	850.0 U	1,700.0 U	870.0 U	860.0 U	860.0 U	8,700.0 U	6,400.0 J	860.0 U
Phenanthrene	400,000.0	12,000.0	46,000.0	580.0 J	11,000.0	1,100.0	5,600.0	81,000.0	2,900.0 J	4,600.0	58.0 J	1,100.0	410.0	340.0 U	87.0 J	7,200.0	25,000.0	55.0 J
Phenol	36,000.0 U	3,400.0 U	900.0 U	670.0 U	3,400.0 U	810.0 U	3,800.0 U	330.0 J	3,300.0 U	3,400.0 U	340.0 U	660.0 U	350.0 U	340.0 U	340.0 U	3,500.0 U	3,400.0 U	340.0 U
Pyrene	310,000.0	110,000.0	190,000.0	2,200.0	68,000.0	3,200.0	87,000.0	97,000.0	8,600.0	12,000.0	390.0	2,500.0	1,400.0	430.0	290.0 J	10,000.0	130,000.0	130.0 J

Table G-1

CLP SURFACE SOIL SAMPLES - GRIDDED
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

Sample Station	JW-SS05	JW-SS10	JW-SS15	JW-SS20	JW-SS25	JW-SS30	JW-SS35	JW-SS39	JW-SS45	JW-SS50	JW-SS55	JW-SS60	JW-SS65	JW-SS70	JW-SS75	JW-SS80	JW-SS97	JW-SS98
Sample Depth (ft-BGS)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Sample Date	7/28/97	7/28/97	7/28/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/29/97	7/30/97	7/30/97	7/30/97	7/28/97	7/30/97
Pesticides/PCBs (µg/kg)																		
4,4'-DDD	10.0 J	34.0 U	48.0 J	6.1 J	34.0 J	4.1 U	38.0 U	41.0 U	3.3 U	61.0	3.4 U	14.0 J	3.5 U	3.4 U	11.0 J	13.0 J	3.4 U	3.4 U
4,4'-DDE	36.0 U	34.0 U	33.0 J	3.3 U	3.4 UJ	4.1 U	38.0 U	4.1 U	3.3 U	3.4 U	3.4 U	3.3 U	3.5 U	3.4 U	36.0 J	19.0 J	20.0 J	3.4 U
4,4'-DDT	35.0 J	69.0 J	110.0 J	3.3 UJ	40.0 J	4.1 UJ	18.0 J	16.0 J	7.8 J	20.0 J	3.4 UJ	3.3 UJ	3.5 U	3.4 UJ	9.1 J	300.0 J	3.4 UJ	3.4 UJ
Aldrin	61.0 J	18.0 U	4.2 J	1.7 U	1.8 UJ	2.1 U	20.0 U	2.1 U	1.7 U	1.7 U	1.7 U	1.7 U	1.8 U	1.8 U	1.8 U	1.8 U	2.7 J	1.8 U
alpha-BHC	18.0 U	18.0 U	2.3 UJ	1.7 UJ	1.8 UJ	2.1 UJ	20.0 U	2.1 UJ	1.7 UJ	1.7 UJ	1.7 U	1.7 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 UJ	1.8 U
alpha-Chlordane	18.0 U	18.0 U	11.0 J	1.7 UJ	1.8 UJ	2.1 UJ	3.9 J	2.1 UJ	1.7 UJ	1.7 UJ	1.7 UJ	1.7 UJ	120.0 J	1.8 UJ	1.8 UJ	8.4 J	1.8 UJ	1.8 UJ
Aroclor-1016	360.0 U	340.0 U	45.0 U	33.0 U	34.0 UJ	41.0 U	380.0 U	41.0 U	33.0 U	34.0 U	34.0 U	33.0 U	180.0 U	70.0 U	34.0 U	35.0 U	34.0 U	34.0 U
Aroclor-1221	730.0 U	690.0 U	92.0 U	68.0 U	69.0 UJ	83.0 U	780.0 U	84.0 U	68.0 U	68.0 U	68.0 U	68.0 U	35.0 U	34.0 U	69.0 U	70.0 U	69.0 U	70.0 U
Aroclor-1232	360.0 U	340.0 U	45.0 U	33.0 U	34.0 UJ	41.0 U	380.0 U	41.0 U	33.0 U	34.0 U	34.0 U	33.0 U	70.0 U	34.0 U	34.0 U	35.0 U	34.0 U	34.0 U
Aroclor-1242	360.0 U	340.0 U	45.0 U	33.0 U	34.0 UJ	41.0 U	380.0 U	41.0 U	33.0 U	34.0 U	34.0 U	33.0 U	35.0 U	34.0 U	34.0 U	35.0 U	34.0 U	34.0 U
Aroclor-1248	360.0 U	340.0 U	45.0 U	33.0 U	34.0 UJ	41.0 U	380.0 U	41.0 U	33.0 U	34.0 U	34.0 U	33.0 U	35.0 U	34.0 U	34.0 U	35.0 U	34.0 U	34.0 U
Aroclor-1254	360.0 U	340.0 U	45.0 U	33.0 U	34.0 UJ	41.0 U	380.0 U	41.0 U	33.0 U	34.0 U	34.0 U	33.0 U	35.0 U	34.0 U	34.0 U	35.0 U	34.0 U	34.0 U
Aroclor-1260	360.0 U	340.0 U	45.0 U	33.0 U	34.0 UJ	41.0 U	380.0 U	41.0 U	33.0 U	34.0 U	34.0 U	33.0 U	35.0 U	34.0 U	34.0 U	35.0 U	34.0 U	34.0 U
beta-BHC	21.0 J	18.0 U	2.3 U	1.7 U	1.8 UJ	2.1 U	20.0 U	3.0 J	1.7 U	1.7 U	1.7 U	1.7 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
delta-BHC	18.0	18.0 U	2.3 U	1.7 U	3.6 J	2.1 U	20.0 U	2.3 J	1.7 U	1.7 U	1.7 U	1.7 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Dieldrin	36.0 U	14.0 J	39.0 J	3.3 U	5.5 J	4.1 U	8.6 J	11.0 J	4.0	3.4 U	5.3 J	3.3 U	4.0 J	13.0 J	5.2 J	47.0 J	4.3 J	20.0 J
Endosulfan I	18.0 U	18.0 U	14.0 J	1.7 U	5.3 J	17.0 J	20.0 U	2.1 U	1.7 U	1.7 U	1.7 U	1.7 U	1.8 U	1.8 U	2.4 J	1.8 U	1.8 U	1.8 U
Endosulfan II	9.2 J	19.0 J	8.9 J	3.3 U	46.0 J	4.1 U	15.0 J	22.0 J	15.0 J	3.4 U	3.4 U	4.2 J	3.5 U	3.4 U	14.0 J	3.5 U	10.0 J	3.4 U
Endosulfan sulfate	190.0	23.0 J	7.6 J	3.3 UJ	3.4 UJ	4.1 UJ	15.0 J	4.1 UJ	3.3 UJ	3.4 UJ	3.4 U	3.3 U	3.5 U	3.4 U	3.4 U	3.5 U	39.0 J	3.4 U
Endrin	68.0 J	32.0 J	16.0 J	3.3 U	46.0 J	4.1 U	72.0	44.0 J	31.0 J	3.4 U	19.0 J	110.0	3.5 U	25.0	3.4 U	29.0 J	46.0 J	9.8 J
Endrin aldehyde	11.0 J	34.0 U	29.0 J	3.3 UJ	22.0 J	4.1 UJ	4.7 J	4.1 UJ	6.7 J	3.8 J	3.4 UJ	310.0	35.0 U	18.0 J	5.6 J	36.0 J	3.4 UJ	4.0 J
Endrin ketone	260.0 J	76.0 J	78.0 J	3.6 J	47.0 J	24.0 J	10.0 J	59.0 J	10.0 J	22.0 J	3.4 U	3.3 U	18.0 UJ	3.4 U	3.4 U	23.0 J	64.0	3.4 U
gamma-BHC (Lindane)	18.0 U	18.0 U	2.3 U	1.7 U	1.8 UJ	2.1 U	20.0 U	2.1 U	1.7 U	1.7 U	1.7 U	1.7 U	1.8 U	1.8 U	2.6 J	1.8 U	1.8 U	1.8 U
gamma-Chlordane	18.0 U	18.0 U	91.0 J	1.7 UJ	1.8 UJ	14.0 J	4.2 J	61.0 J	1.7 UJ	1.7 UJ	2.5 J	3.4 J	1.8 UJ	180.0 U	1.8 U	3.4 J	360.0 J	1.8 U
Heptachlor	18.0 U	18.0 U	2.3 UJ	1.7 UJ	1.8 UJ	2.1 UJ	20.0 U	2.1 UJ	1.7 UJ	1.7 UJ	1.7 U	1.7 U	1.8 U	1.8 U	3.0 J	1.8 U	1.8 UJ	1.8 U
Heptachlor epoxide	18.0 U	18.0 U	29.0 J	1.7 UJ	2.2 J	2.1 UJ	20.0 U	4.7 J	1.7 UJ	2.0 J	1.7 U	1.7 U	1.8 U	1.8 U	6.0 J	2.2 J	4.9 J	1.8 U
Methoxychlor	180.0 U	96.0 J	23.0 UJ	160.0 J	18.0 UJ	240.0 J	660.0	21.0 UJ	17.0 UJ	17.0 UJ	17.0 UJ	17.0 UJ	3.5 UJ	18.0 UJ	18.0 UJ	18.0 UJ	32.0 J	18.0 UJ
Toxaphene	1,800.0 U	1,800.0 U	230.0 U	170.0 U	180.0 UJ	210.0 U	2,000.0 U	210.0 U	170.0 U	170.0 U	170.0 U	170.0 U	1.8 U	34.0 U	180.0 U	180.0 U	180.0 U	180.0 U

Table G-1

Key:

- B = Metals: Analyte detected below lowest calibration standard but above the instrument detection limit.
- B = Organics: Analyte found in associated blank as well as in the sample.
- J = Value is estimated - data quality criteria not met or value is below the contract-required quantitation limit.
- R = Rejected: Quality control indicates that the result is unusable.
- U = Chemical was analyzed for, but not detected. The associated value is the sample quantitation limit (SQL).
- mg/kg = Milligrams per kilogram or parts per million.
- µg/kg = Micrograms per kilogram or parts per billion.
- PCBs = Polychlorinated biphenyls

Note: **Bold type** indicates that the chemical was **detected** at the indicated concentration.

CLP Surface Soil Samples—Biased

Table G-2

CLP SURFACE SOIL SAMPLES - BIASED
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

Sample Station	JW-SS85	JW-SS86	JW-SS87	JW-SS88	JW-SS89	JW-SS90	JW-SS91	JW-SS92	JW-SS94	JW-SS95	JW-SS96	JW-SS99
Sample Depth (ft-BGS)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Sample Date	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97	7/31/97	7/31/97	7/31/97	7/31/97	7/31/97	7/30/97
Metals (mg/kg)												
Aluminum	8,130.0	10,200.0	8,610.0	16,500.0	9,800.0	9,150.0	5,020.0	5,280.0	8,920.0	4,690.0	20,800.0	9,050.0
Antimony	1.6	1.8 J	0.8 J	1.3 J	1.6 J	0.5	6.6	2.5	2.1	3.8	0.6	0.4 U
Arsenic	11.0	8.7	8.4	3.1	3.3	6.3	9.6	8.8	7.8	7.6	4.0	6.9
Barium	234.0	186.0	150.0	219.0	145.0	136.0	147.0	165.0	168.0	76.2	236.0	126.0
Beryllium	1.0	0.9 J	0.4 J	3.7	1.6 J	0.7	0.7 J	0.4 J	1.0 J	0.2 UJ	3.9	0.5 J
Cadmium	2.5	2.5	0.2 U	2.8	1.9	0.2 U	2.4	2.1	2.0	1.7	2.8	0.5
Calcium	54,100.0	32,400.0	34,200.0	118,000.0	68,100.0	22,600.0	22,500.0	8,920.0	36,700.0	13,800.0	104,000.0	16,700.0
Chromium	110.0	27.5 J	18.8 J	137.0 J	61.9 J	14.8	26.4	19.2	43.2	19.7	219.0	15.3
Cobalt	8.2	7.0	7.7	2.1	2.1	7.4	5.1	6.3	5.2	3.0	1.8	7.5
Copper	139.0	48.2	17.1	42.4	59.1	15.7	53.4	57.0	60.5	61.1	40.9	16.1
Cyanide	1.8	1.2	0.1 U	4.7	2.8	1.6	0.6 J	0.5 J	0.9 J	0.4 J	1.6	0.6 J
Iron	38,200.0	24,200.0	18,800.0	27,200.0	15,000.0	18,600.0	24,100.0	25,400.0	30,400.0	22,900.0	40,300.0	17,500.0
Lead	475.0	177.0	13.0	153.0	138.0	13.7	581.0	226.0	160.0	187.0	112.0	16.6
Magnesium	5,710.0	4,190.0	14,500.0	27,700.0	12,800.0	3,650.0	3,120.0	2,270.0	5,330.0	2,030.0	33,300.0	3,920.0
Manganese	2,810.0 J	822.0	835.0	3,820.0	2,130.0	613.0	813.0	619.0	1,270.0	381.0	5,830.0 J	614.0
Mercury	0.4	0.2 J	0.05 U	0.06 U	0.3 J	0.05 U	0.2	0.08	0.08	0.1	0.1	0.1
Nickel	20.8	22.8	18.9	10.1	9.7	18.8	18.4	18.2	19.1	28.4	6.4	19.0
Potassium	1,310.0 J	2,180.0	1,090.0	2,240.0	1,540.0	1,450.0 J	1,280.0 J	1,300.0 J	1,210.0 J	500.0 J	2,280.0 J	1,400.0 J
Selenium	0.6 U	1.9 J	0.6 UJ	3.2 J	4.5 J	0.6 U	1.1	1.7	0.6 U	0.6 U	0.6 U	0.6 U
Silver	0.4 J	0.2 UJ	0.2 UJ	0.3 J	0.3 UJ	0.2 UJ	0.3 J	0.2 UJ	0.2 UJ	0.2 UJ	0.3 J	0.2 UJ
Sodium	336.0	388.0	258.0	1,850.0	1,210.0	522.0	391.0	328.0	610.0	274.0	1,720.0	516.0
Thallium	1.5	0.8 J	2.5 J	0.7 U	0.9 U	1.5	0.6 U	0.6 U	1.8	0.6	2.9	1.6
Vanadium	100.0	48.7 J	43.2 J	152.0 J	91.3 J	30.7	33.7	26.8	60.8	20.7	325.0	30.4
Zinc	538.0	472.0	60.3	347.0	312.0	61.5	380.0	293.0	389.0	1,340.0	217.0	70.1

Area H

Table G-2

CLP SURFACE SOIL SAMPLES - BIASED
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

Sample Station	JW-SS85	JW-SS86	JW-SS87	JW-SS88	JW-SS89	JW-SS90	JW-SS91	JW-SS92	JW-SS94	JW-SS95	JW-SS96	JW-SS99
Sample Depth (ft-BGS)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Sample Date	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97	7/31/97	7/31/97	7/31/97	7/31/97	7/30/97
Volatile Organics (µg/kg)												
1,1,1-Trichloroethane	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U
1,1,2,2-Tetrachloroethane	10.0 UJ	11.0 UJ	10.0 UJ	11.0 UJ	2,000.0 U	10.0 U	10.0 U	10.0 UJ	10.0 UJ	10.0 U	10.0 U	10.0 U
1,1,2-Trichloroethane	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U
1,1-Dichloroethane	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,1-Dichloroethene	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichloroethane	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichloroethene (total)	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichloropropane	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U
2-Butanone	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	1.0 J	10.0 U	10.0 U
2-Hexanone	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 UJ	10.0 UJ	10.0 U	10.0 UJ	10.0 UJ	10.0 U
4-Methyl-2-Pentanone	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U
Acetone	10.0 U	11.0 U	10.0 U	18.0 U	2,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	9.0 J	8.0 J	5.0 J
Benzene	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U
Bromodichloromethane	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U
Bromoform	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U
Bromomethane	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Carbon Disulfide	10.0 U	11.0 U	10.0 U	1.0 J	2,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Carbon Tetrachloride	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U
Chlorobenzene	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U
Chloroethane	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chloroform	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chloromethane	10.0 UJ	11.0 UJ	10.0 UJ	11.0 UJ	2,000.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	4.0 J	10.0 UJ	10.0 UJ
cis-1,3-Dichloropropene	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U
Dibromochloromethane	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U
Ethylbenzene	10.0 U	11.0 U	10.0 U	11.0 U	1,000.0 J	2.0 J	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	1.0 J
Methylene Chloride	2.0 J	1.0 J	2.0 J	2.0 J	2,000.0 U	10.0 U	1.0 J	1.0 J	10.0 U	10.0 U	10.0 U	10.0 U
Styrene	10.0 U	11.0 U	10.0 U	1.0 J	860.0 J	1.0 J	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U
Tetrachloroethene	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U
Toluene	1.0 J	11.0 U	1.0 J	11.0 U	880.0 J	4.0 J	18.0	22.0 J	1.0 J	10.0 U	3.0 J	3.0 J
trans-1,3-Dichloropropene	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U
Trichloroethene	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U
Vinyl Chloride	10.0 U	11.0 U	10.0 U	11.0 U	2,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Xylene (total)	10.0 U	11.0 U	10.0 U	11.0 U	3,000.0	6.0 J	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	5.0 J

Area H

Table G-2

CLP SURFACE SOIL SAMPLES - BIASED
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

Sample Station	JW-SS85	JW-SS86	JW-SS87	JW-SS88	JW-SS89	JW-SS90	JW-SS91	JW-SS92	JW-SS94	JW-SS95	JW-SS96	JW-SS99
Sample Depth (ft-BGS)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Sample Date	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97	7/31/97	7/31/97	7/31/97	7/31/97	7/31/97	7/30/97
Semivolatile Organics (µg/kg)												
1,2,4-Trichlorobenzene	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
1,2-Dichlorobenzene	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
1,3-Dichlorobenzene	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
1,4-Dichlorobenzene	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
2,2'-oxybis(1-Chloropropane)	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
2,4,5-Trichlorophenol	17,000.0 U	280,000.0 U	1,700.0 U	2,800,000.0 U	830,000.0 U	43,000.0 U	26,000.0 U	17,000.0 U	8,600.0 U	52,000.0 U	100,000.0 U	860.0 U
2,4,6-Trichlorophenol	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
2,4-Dichlorophenol	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
2,4-Dimethylphenol	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	150.0 J
2,4-Dinitrophenol	17,000.0 U	280,000.0 U	1,700.0 U	2,800,000.0 U	830,000.0 U	43,000.0 U	26,000.0 U	17,000.0 U	8,600.0 U	52,000.0 U	100,000.0 U	860.0 U
2,4-Dinitrotoluene	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
2,6-Dinitrotoluene	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
2-Chloronaphthalene	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
2-Chlorophenol	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
2-Methylnaphthalene	660.0 J	9,900.0 J	52.0 J	1,500,000.0 J	4,600,000.0	7,600.0 J	8,500.0 J	570.0 J	750.0 J	1,400.0 J	3,200.0 J	7,200.0 J
2-Methylphenol	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	42.0 J
2-Nitroaniline	17,000.0 U	280,000.0 U	1,700.0 U	2,800,000.0 U	830,000.0 U	43,000.0 U	26,000.0 U	17,000.0 U	8,600.0 U	52,000.0 U	100,000.0 U	860.0 U
2-Nitrophenol	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
3,3'-Dichlorobenzidine	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
3-Nitroaniline	17,000.0 U	280,000.0 U	1,700.0 U	2,800,000.0 U	830,000.0 U	43,000.0 U	26,000.0 U	17,000.0 U	8,600.0 U	52,000.0 U	100,000.0 U	860.0 U
4,6-Dinitro-2-methylphenol	17,000.0 U	280,000.0 U	1,700.0 U	2,800,000.0 U	830,000.0 U	43,000.0 U	26,000.0 U	17,000.0 U	8,600.0 U	52,000.0 U	100,000.0 U	860.0 U
4-Bromophenyl-phenylether	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
4-Chloro-3-methylphenol	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
4-Chloroaniline	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
4-Chlorophenyl-phenylether	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
4-Methylphenol	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	170.0 J
4-Nitroaniline	17,000.0 U	280,000.0 U	1,700.0 U	2,800,000.0 U	830,000.0 U	43,000.0 U	26,000.0 U	17,000.0 U	8,600.0 U	52,000.0 U	100,000.0 U	860.0 U
4-Nitrophenol	17,000.0 U	280,000.0 U	1,700.0 U	2,800,000.0 U	830,000.0 U	43,000.0 U	26,000.0 U	17,000.0 U	8,600.0 U	52,000.0 U	100,000.0 U	860.0 U
Acenaphthene	1,100.0 J	110,000.0 U	94.0 J	6,200,000.0 J	10,000,000.0	23,000.0	6,500.0 J	800.0 J	640.0 J	21,000.0 U	40,000.0 U	20,000.0 J
Acenaphthylene	12,000.0	30,000.0 J	1,300.0	240,000.0 J	270,000.0 J	2,200.0 J	24,000.0	8,600.0	6,000.0	21,000.0 U	37,000.0 J	2,300.0 J
Anthracene	27,000.0	330,000.0	2,800.0	12,000,000.0 J	12,000,000.0	110,000.0	33,000.0	9,600.0	7,200.0	3,200.0 J	35,000.0 J	160,000.0
Benzo(a)anthracene	17,000.0	87,000.0 J	2,500.0	7,000,000.0 J	6,200,000.0 J	30,000.0	26,000.0	21,000.0	4,200.0	4,000.0 J	70,000.0	44,000.0
Benzo(a)pyrene	42,000.0	130,000.0	4,300.0	2,800,000.0 J	1,500,000.0	16,000.0 J	35,000.0	36,000.0	4,400.0	3,500.0 J	140,000.0	24,000.0 J

Area H

Table G-2

**CLP SURFACE SOIL SAMPLES - BIASED
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS**

Sample Station	JW-SS85	JW-SS86	JW-SS87	JW-SS88	JW-SS89	JW-SS90	JW-SS91	JW-SS92	JW-SS94	JW-SS95	JW-SS96	JW-SS99
Sample Depth (ft-BGS)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Sample Date	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97	7/31/97	7/31/97	7/31/97	7/31/97	7/31/97	7/30/97
Semivolatile Organics (µg/kg) - (Cont.)												
Benzo(b)fluoranthene	43,000.0	140,000.0	4,100.0	2,900,000.0 J	1,500,000.0	16,000.0 J	40,000.0	47,000.0	7,400.0	6,300.0 J	150,000.0	34,000.0
Benzo(g,h,i)perylene	40,000.0	92,000.0 J	4,000.0	800,000.0 J	360,000.0	6,400.0 J	58,000.0	27,000.0	7,600.0	4,600.0 J	140,000.0	12,000.0 J
Benzo(k)fluoranthene	36,000.0	120,000.0	3,800.0	3,100,000.0 J	1,900,000.0	18,000.0	40,000.0	32,000.0	5,500.0	6,400.0 J	140,000.0	23,000.0 J
bis(2-Chloroethoxy)methane	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
bis(2-Chloroethyl) ether	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
bis(2-Ethylhexyl)phthalate	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	3,400.0 J	40,000.0 U	390.0 U
Butylbenzylphthalate	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
Carbazole	7,800.0	95,000.0 J	570.0 J	5,600,000.0 J	5,400,000.0 J	30,000.0	10,000.0	2,300.0 J	740.0 J	21,000.0 U	12,000.0 J	38,000.0
Chrysene	29,000.0	160,000.0	5,100.0	7,400,000.0 J	7,000,000.0 J	39,000.0	41,000.0	34,000.0	5,600.0	6,600.0 J	120,000.0	51,000.0
Di-n-butylphthalate	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	2,800.0 J	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
Di-n-octylphthalate	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
Dibenzo(a,h)anthracene	12,000.0	29,000.0 J	1,400.0	350,000.0 J	150,000.0 J	2,800.0 J	14,000.0	9,200.0	2,300.0 J	21,000.0 U	45,000.0	4,800.0 J
Dibenzofuran	1,300.0 J	19,000.0 J	120.0 J	5,300,000.0 J	8,800,000.0	16,000.0 J	16,000.0	1,000.0 J	510.0 J	1,400.0 J	6,900.0 J	14,000.0 J
Diethylphthalate	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
Dimethylphthalate	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
Fluoranthene	21,000.0	130,000.0	1,800.0	39,000,000.0 J	39,000,000.0	120,000.0	88,000.0	23,000.0	6,000.0	13,000.0 J	150,000.0	180,000.0
Fluorene	1,800.0 J	28,000.0 J	160.0 J	8,600,000.0 J	14,000,000.0	24,000.0	7,600.0 J	530.0 J	3,400.0 U	2,400.0 J	2,800.0 J	22,000.0 J
Hexachlorobenzene	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
Hexachlorobutadiene	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
Hexachlorocyclopentadiene	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
Hexachloroethane	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
Indeno(1,2,3-cd)pyrene	35,000.0	92,000.0 J	3,700.0	930,000.0 J	410,000.0	7,300.0 J	45,000.0	25,000.0	6,300.0	4,000.0 J	120,000.0	13,000.0 J
Isophorone	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
N-Nitroso-di-n-propylamine	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
N-Nitrosodiphenylamine (I)	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
Naphthalene	1,600.0 J	49,000.0 J	220.0 J	1,200,000.0 J	3,300,000.0 J	7,900.0 J	35,000.0	1,200.0 J	1,300.0 J	21,000.0 U	15,000.0 J	10,000.0 J
Nitrobenzene	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
Pentachlorophenol	3,600.0 J	95,000.0 J	1,700.0 U	2,800,000.0 U	830,000.0 U	43,000.0 U	31,000.0 J	6,000.0 J	36,000.0	520,000.0	100,000.0 U	860.0 U
Phenanthrene	8,800.0	91,000.0 J	720.0	52,000,000.0 J	62,000,000.0	77,000.0	67,000.0	6,000.0 J	3,800.0	12,000.0 J	51,000.0	72,000.0
Phenol	6,900.0 U	110,000.0 U	690.0 U	1,100,000.0 U	330,000.0 U	17,000.0 U	10,000.0 U	6,900.0 U	3,400.0 U	21,000.0 U	40,000.0 U	340.0 U
Pyrene	24,000.0	140,000.0	2,300.0	27,000,000.0 J	25,000,000.0	78,000.0	72,000.0 J	32,000.0	6,900.0	17,000.0 J	150,000.0	130,000.0

Area H

Table G-2

CLP SURFACE SOIL SAMPLES - BIASED
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

Sample Station	JW-SS85	JW-SS86	JW-SS87	JW-SS88	JW-SS89	JW-SS90	JW-SS91	JW-SS92	JW-SS94	JW-SS95	JW-SS96	JW-SS99
Sample Depth (ft-BGS)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Sample Date	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97	7/31/97	7/31/97	7/31/97	7/31/97	7/31/97	7/30/97
Pesticides/PCBs (µg/kg)												
4,4'-DDD	4.8 J	9.7 J	3.4 U	19.0 J	880.0 J	3.4 UJ	16.0 J	19.0 J	3.4 UJ	34.0 U	52.0 J	3.4 UJ
4,4'-DDE	3.4 U	3.7 U	3.4 U	3.7 UJ	2,800.0 U	3.4 U	3.5 U	34.0 U	3.4 U	34.0 U	3.3 U	3.4 UJ
4,4'-DDT	5.5 J	35.0 J	54.0 J	99.0 J	310.0 J	9.3 J	35.0 U	34.0 U	15.0 J	320.0 J	33.0 U	16.0 J
Aldrin	1.8 U	3.3 J	1.8 U	1.9 UJ	34.0 J	3.2 J	6.7 J	18.0 U	5.0 J	18.0 U	4.0 J	2.2 J
alpha-BHC	3.2 J	20.0 J	1.8 U	1.9 UJ	28.0 UJ	16.0 J	8.2 J	18.0 U	1.8 U	24.0 J	1.7 U	1.8 UJ
alpha-Chlordane	3.6 J	9.6 J	1.8 UJ	1.9 UJ	28.0 UJ	1.8 UJ	9.2 J	18.0 U	1.8 UJ	43.0 J	1.7 UJ	2.2 J
Aroclor-1016	34.0 U	37.0 U	34.0 U	37.0 UJ	550.0 UJ	34.0 U	35.0 U	340.0 U	34.0 U	340.0 U	33.0 U	34.0 UJ
Aroclor-1221	70.0 U	74.0 U	70.0 U	74.0 UJ	1,100.0 UJ	69.0 U	70.0 U	700.0 U	69.0 U	690.0 U	68.0 U	69.0 UJ
Aroclor-1232	34.0 U	37.0 U	34.0 U	37.0 UJ	550.0 UJ	34.0 U	35.0 U	340.0 U	34.0 U	340.0 U	33.0 U	34.0 UJ
Aroclor-1242	34.0 U	37.0 U	34.0 U	37.0 UJ	550.0 UJ	34.0 U	35.0 U	340.0 U	34.0 U	340.0 U	33.0 U	34.0 UJ
Aroclor-1248	34.0 U	37.0 U	34.0 U	37.0 UJ	550.0 UJ	34.0 U	35.0 U	340.0 U	34.0 U	340.0 U	33.0 U	34.0 UJ
Aroclor-1254	34.0 U	37.0 U	34.0 U	37.0 UJ	550.0 UJ	34.0 U	35.0 U	340.0 U	34.0 U	340.0 U	33.0 U	34.0 UJ
Aroclor-1260	34.0 U	37.0 U	34.0 U	37.0 UJ	550.0 UJ	34.0 U	35.0 U	340.0 U	34.0 U	340.0 U	33.0 U	34.0 UJ
beta-BHC	1.8 U	1.9 U	1.8 U	3.3 J	28.0 UJ	1.8 UJ	1.8 UJ	18.0 U	1.8 UJ	18.0 U	1.7 UJ	1.8 UJ
delta-BHC	1.8 U	1.9 U	1.8 U	19.0 UJ	88.0 J	1.8 U	1.8 U	18.0 U	1.8 U	25.0 J	1.7 U	1.8 UJ
Dieldrin	4.5 J	3.7 U	3.4 U	3.7 UJ	55.0 UJ	9.7 J	3.5 U	220.0 J	3.4 U	14.0 J	10.0 J	3.4 UJ
Endosulfan I	1.8 U	12.0 J	1.8 U	1.9 UJ	1,400.0 U	1.8 U	19.0 J	18.0 U	1.9 J	16.0 J	1.7 U	18.0 U
Endosulfan II	16.0 J	43.0 J	34.0 U	120.0 J	93.0 J	34.0 UJ	5.4 J	23.0 J	3.4 U	34.0 U	4.8 J	20.0 J
Endosulfan sulfate	19.0 J	37.0 U	3.4 U	100.0 J	55.0 UJ	3.4 UJ	35.0 U	34.0 U	3.4 UJ	34.0 U	3.3 UJ	16.0 J
Endrin	150.0 J	3.9 J	34.0 U	24.0 J	110.0 J	10.0 J	3.8 J	520.0 J	16.0 J	1,000.0 J	3.6 J	23.0 J
Endrin aldehyde	3.4 UJ	3.7 UJ	3.4 UJ	3.7 UJ	55.0 UJ	6.0 J	3.5 UJ	170.0 UJ	3.4 UJ	180.0 J	33.0 U	3.4 UJ
Endrin ketone	14.0 J	23.0 J	10.0 J	49.0 J	56.0 J	43.0 J	22.0 J	57.0 J	41.0 J	280.0	24.0 J	15.0 J
gamma-BHC (Lindane)	1.8 U	1.9 U	1.8 U	1.9 UJ	28.0 UJ	3.2 J	1.8 U	18.0 U	1.8 U	18.0 U	1.7 U	2.9 J
gamma-Chlordane	1.8 U	1.9 U	1.8 U	1.9 UJ	1,400.0 U	18.0 UJ	1.8 U	18.0 U	1.8 J	18.0 U	1.7 U	1.8 UJ
Heptachlor	1.8 U	2.0 J	1.8 U	19.0 UJ	7.4 J	1.8 U	1.8 U	18.0 U	1.8 U	4.9 J	1.7 U	2.6 J
Heptachlor epoxide	3.4 J	25.0 J	1.8 U	1.9 UJ	28.0 UJ	1.8 UJ	14.0 J	18.0 U	4.5 J	33.0	13.0 J	4.7 J
Methoxychlor	18.0 UJ	19.0 UJ	18.0 UJ	190.0 UJ	14,000.0 UJ	18.0 UJ	18.0 UJ	180.0 U	18.0 UJ	480.0 J	17.0 UJ	18.0 UJ
Toxaphene	180.0 U	190.0 U	180.0 U	190.0 UJ	2,800.0 UJ	180.0 U	180.0 U	1,800.0 U	180.0 U	1,800.0 U	170.0 U	180.0 UJ

Area H

Table G-2

Key:

- B = Metals: Analyte detected below lowest calibration standard but above the instrument detection limit.
- B = Organics: Analyte found in associated blank as well as in the sample.
- J = Value is estimated - data quality criteria not met or value is below the contract-required quantitation limit.
- R = Rejected: Quality control indicates that the result is unusable.
- U = Chemical was analyzed for, but not detected. The associated value is the sample quantitation limit (SQL).
- mg/kg = Milligrams per kilogram or parts per million.
- µg/kg = Micrograms per kilogram or parts per billion.
- PCBs = Polychlorinated biphenyls

Note: Bold type indicates that the chemical was **detected** at the indicated concentration.

G3

CLP Subsurface Soil Samples

Table G-3

**CLP SUBSURFACE SOIL SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS**

Sample Station	JW-SB04	JW-SB07	JW-SB08	JW-SB12	JW-SB14	JW-SB17	JW-SB18	JW-SB19	JW-SB20	JW-SB23	JW-SB25	JW-SB29	JW-SB31	JW-SB32	JW-SB33	JW-SB34	JW-SB35
Sample Depth (ft-BGS)	5-7	5-7	6-8	12-14	12-14	5-7	5-7	5-7	10-12	6-8	12-14	5-7	5-7	8-10	6-8	16-17	8-10
Sample Date	7/30/97	7/31/97	8/4/97	8/1/97	8/4/97	8/5/97	8/5/97	8/1/97	7/30/97	7/29/97	7/29/97	7/30/97	8/5/97	8/11/97	8/12/97	8/12/97	8/11/97
Metals (mg/kg)																	
Aluminum	3,490.0	7,860.0	3,420.0	5,180.0	3,840.0	3,700.0	7,420.0	5,680.0	2,590.0	2,980.0	2,610.0	4,790.0	8,100.0	6,740.0	15,100.0	6,160.0	7,000.0
Antimony	0.7 J	0.69 BN	0.43 UN	0.5 J	0.44 UN	0.44 UN	0.62 BN	0.8 J	0.4 U	0.4 UJ	0.6 J	0.4 U	0.48 UN	11.8 UJ	12.4 UJ	11.2 UJ	11.9 UJ
Arsenic	3.6	7.1	5.3	6.1	7.5	5.9	7.5	8.0	3.7	2.4	2.8	6.9	8.2	3.6	4.3	6.6	3.2
Barium	50.6	110.0 *	113.0 *	149.0	144.0 *	101.0 *	161.0 *	132.0	39.1	34.0	28.9	155.0	137.0 *	91.5	199.0	198.0	92.6
Beryllium	0.2 U	0.52 B	0.24 B	0.2 U	0.27 B	0.28 B	0.51 B	0.2 U	0.3	0.2 U	0.2 U	0.5	0.57 B	0.3	0.7	0.4	0.3
Cadmium	0.2 U	0.24 U	0.21 U	0.2 U	0.22 U	0.22 U	0.25 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.24 U	0.5 U	0.5 U	0.4 U	0.5 U
Calcium	1,470.0	3,900.0	8,010.0	2,730.0	15,200.0	9,670.0	3,610.0	2,400.0	1,200.0	1,190.0	2,500.0	2,350.0	3,740.0	1,440.0	4,800.0	17,000.0	1,420.0
Chromium	6.3 J	11.1	7.1	9.1 J	7.1	7.2	10.6	9.8 J	4.8	4.9 J	4.5 J	8.0	11.8	9.9	20.3	10.6	10.0
Cobalt	3.8	6.5 B	5.9 B	6.3	5.2 B	5.6 B	7.9 B	7.4	4.6	3.4	3.2	6.6	7.5 B	5.5	8.4	6.4	6.0
Copper	3.4	11.6	5.0 B	9.6	8.7	6.6	14.4	10.6	2.2	2.6	1.9 J	8.5	15.5	7.7	20.3	12.2	7.4
Cyanide	0.1 U	0.14 B	0.11 B	0.1 U	0.12 B	0.11 U	0.14 B	0.1 U	0.1 J	0.1 U	0.1 U	0.1 J	0.14 B	0.3 U	0.3 U	0.3 U	0.3 U
Iron	7,920.0	14,100.0	9,780.0	12,500.0	11,000.0	10,300.0	14,500.0	13,500.0	6,800.0	5,880.0	5,740.0	11,700.0	15,500.0	11,200.0	19,400.0	12,800.0	10,900.0
Lead	4.9	10.8	6.9	9.0	7.7	7.1	10.6	13.8	4.3	3.8	3.6	8.4	12.1	10.3	13.8	10.3	7.6
Magnesium	1,330.0	2,750.0	4,300.0	2,280.0	5,870.0	4,220.0	2,900.0	2,200.0	1,280.0	1,180.0	1,400.0	2,100.0	3,110.0	2,730.0	4,180.0	6,390.0	2,830.0
Manganese	105.0	464.0	270.0	416.0	264.0	235.0	417.0	308.0	92.3	79.8	111.0	357.0	457.0	99.0	290.0	239.0	96.3
Mercury	0.06 U	0.06 U	0.05 U	0.06 U	0.06 U	0.05 U	0.06 U	0.06 U	0.05 U	0.05 U	0.05 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
Nickel	9.3	19.5	15.3	19.7	12.3	14.6	20.4	20.6	10.1	8.3	9.2	17.8	20.5	13.4	22.1	17.2	13.0
Potassium	556.0	1,350.0	761.0 B	1,100.0	809.0 B	751.0 B	1,130.0 B	1,160.0	447.0 J	474.0	443.0	935.0 J	1,250.0	1,570.0	2,480.0	1,280.0	1,610.0
Selenium	0.7 UJ	0.72 U	0.64 U	0.7 UJ	0.66 U	0.65 U	0.75 U	0.7 UJ	0.6 U	0.6 UJ	0.6 UJ	0.7 U	0.72 U	0.2 UJ	0.2 UJ	0.22 UJ	0.2 UJ
Silver	0.2 UJ	0.24 UN	0.21 UN	0.2 UJ	0.22 UN	0.22 UN	0.25 UN	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.24 UN	0.7 U	0.7 U	0.7 U	0.7 U
Sodium	193.0	333.0 B	272.0 B	257.0	797.0 B	267.0 B	342.0 B	310.0	200.0	186.0	220.0	278.0	330.0 B	224.0	289.0	177.0	226.0
Thallium	0.7 J	2.9	2.3	1.3 J	2.0 B	2.3	2.7	1.2 J	0.8	1.0	1.0 J	1.1	2.4 B	0.2 UJ	0.2 UJ	0.2 U	0.2 UJ
Vanadium	12.2 J	21.3	13.1	17.4 J	15.8	13.5	19.3	18.7 J	9.0	8.4 J	8.4 J	15.6	21.9	17.5	35.6	21.1	17.2
Zinc	56.7	53.5	33.8	44.4	34.4	36.3	52.4	50.2	23.4	21.6	19.7	42.8	54.1	41.6	140.0	38.8	44.9

G3-2

G3-2

Table G-3

CLP SUBSURFACE SOIL SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

Sample Station	JW-SB04	JW-SB07	JW-SB08	JW-SB12	JW-SB14	JW-SB17	JW-SB18	JW-SB19	JW-SB20	JW-SB23	JW-SB25	JW-SB29	JW-SB31	JW-SB32	JW-SB33	JW-SB34	JW-SB35
Sample Depth (ft-BGS)	5-7	5-7	6-8	12-14	12-14	5-7	5-7	5-7	10-12	6-8	12-14	5-7	5-7	8-10	6-8	16-17	8-10
Sample Date	7/30/97	7/31/97	8/4/97	8/1/97	8/4/97	8/5/97	8/5/97	8/1/97	7/30/97	7/29/97	7/29/97	7/30/97	8/5/97	8/11/97	8/12/97	8/12/97	8/11/97
Volatile organics (µg/kg)																	
1,1,1-Trichloroethane	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
1,1,2,2-Tetrachloroethane	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
1,1,2-Trichloroethane	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
1,1-Dichloroethane	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
1,1-Dichloroethene	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
1,2-Dichloroethane	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
1,2-Dichloroethene (total)	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
1,2-Dichloropropane	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
2-Butanone	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
2-Hexanone	11.0 U	13.0 U	11.0 U	12.0 U	10.0 J	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
4-Methyl-2-Pentanone	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
Acetone	11.0 U	13.0 U	3.0 J	12.0 U	12.0 U	11.0 U	12.0 U	4.0 J	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	16.0 BU	1,400.0 U
Benzene	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	4,200.0	1,500.0 U	12.0 U	3,900.0
Bromodichloromethane	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
Bromoform	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
Bromomethane	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
Carbon Disulfide	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
Carbon Tetrachloride	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
Chlorobenzene	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	2.0 J	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
Chloroethane	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
Chloroform	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	1.0 J	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
Chloromethane	11.0 U	13.0 U	3.0 J	3.0 J	12.0 U	2.0 J	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
cis-1,3-Dichloropropene	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
Dibromochloromethane	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
Ethylbenzene	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	7,300.0	1,400.0 J	12.0 U	7,400.0
Methylene Chloride	8.0 J	4.0 J	11.0 U	12.0 U	4.0 J	4.0 J	4.0 J	1.0 J	12.0 U	10.0 U	11.0 U	11.0 U	4.0 J	1,400.0 U	1,500.0 U	17.0 BU	1,400.0 U
Styrene	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	4,400.0	1,500.0 U	12.0 U	4,500.0
Tetrachloroethene	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
Toluene	11.0 U	13.0 U	2.0 J	12.0 U	12.0 U	11.0 U	12.0 U	14.0	2.0 J	10.0 U	11.0 U	8.0 J	13.0 U	12,000.0	230.0 J	12.0	11,000.0
trans-1,3-Dichloropropene	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
Trichloroethene	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
Vinyl Chloride	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	1,400.0 U	1,500.0 U	12.0 U	1,400.0 U
Xylene (total)	11.0 U	13.0 U	11.0 U	12.0 U	12.0 U	11.0 U	12.0 U	11.0 U	12.0 U	10.0 U	11.0 U	11.0 U	13.0 U	31,000.0	2,700.0	12.0 U	30,000.0

G-3

Table G-3

CLP SUBSURFACE SOIL SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

Sample Station	JW-SB04	JW-SB07	JW-SB08	JW-SB12	JW-SB14	JW-SB17	JW-SB18	JW-SB19	JW-SB20	JW-SB23	JW-SB25	JW-SB29	JW-SB31	JW-SB32	JW-SB33	JW-SB34	JW-SB35
Sample Depth (ft-BGS)	5-7	5-7	6-8	12-14	12-14	5-7	5-7	5-7	10-12	6-8	12-14	5-7	5-7	8-10	6-8	16-17	8-10
Sample Date	7/30/97	7/31/97	8/4/97	8/1/97	8/4/97	8/5/97	8/5/97	8/1/97	7/30/97	7/29/97	7/29/97	7/30/97	8/5/97	8/11/97	8/12/97	8/12/97	8/11/97
Semivolatile organics (ug/kg)																	
1,2,4-Trichlorobenzene	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
1,2-Dichlorobenzene	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
1,3-Dichlorobenzene	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
1,4-Dichlorobenzene	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
2,2'-oxybis(1-Chloropropane)	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
2,4,5-Trichlorophenol	940.0 U	1,100.0 U	900.0 U	1,000.0 U	1,000.0 U	900.0 U	1,000.0 U	950.0 U	960.0 U	870.0 U	880.0 U	910.0 U	1,000.0 U	96,000.0 U	100,000.0 U	930.0 U	96,000.0 U
2,4,6-Trichlorophenol	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
2,4-Dichlorophenol	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
2,4-Dimethylphenol	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	27,000.0 J	41,000.0 U	370.0 U	22,000.0 J
2,4-Dinitrophenol	940.0 U	1,100.0 U	900.0 U	1,000.0 U	1,000.0 U	900.0 U	1,000.0 U	950.0 U	960.0 U	870.0 U	880.0 U	910.0 U	1,000.0 U	96,000.0 U	100,000.0 U	930.0 U	96,000.0 U
2,4-Dinitrotoluene	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
2,6-Dinitrotoluene	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
2-Chloronaphthalene	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
2-Chlorophenol	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
2-Methylnaphthalene	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	480,000.0 E	56,000.0	93.0 J	420,000.0 E
2-Methylphenol	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	12,000.0 J	41,000.0 U	370.0 U	10,000.0 J
2-Nitroaniline	940.0 U	1,100.0 U	900.0 U	1,000.0 U	1,000.0 U	900.0 U	1,000.0 U	950.0 U	960.0 U	870.0 U	880.0 U	910.0 U	1,000.0 U	96,000.0 U	100,000.0 U	930.0 U	96,000.0 U
2-Nitrophenol	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
3,3'-Dichlorobenzidine	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
3-Nitroaniline	940.0 U	1,100.0 U	900.0 U	1,000.0 U	1,000.0 U	900.0 U	1,000.0 U	950.0 U	960.0 U	870.0 U	880.0 U	910.0 U	1,000.0 U	96,000.0 U	100,000.0 U	930.0 U	96,000.0 U
4,6-Dinitro-2-methylphenol	940.0 U	1,100.0 U	900.0 U	1,000.0 U	1,000.0 U	900.0 U	1,000.0 U	950.0 U	960.0 U	870.0 U	880.0 U	910.0 U	1,000.0 U	96,000.0 U	100,000.0 U	930.0 U	96,000.0 U
4-Bromophenyl-phenylether	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
4-Chloro-3-methylphenol	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
4-Chloroaniline	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
4-Chlorophenyl-phenylether	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
4-Methylphenol	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	39,000.0	41,000.0 U	370.0 U	31,000.0 J
4-Nitroaniline	940.0 U	1,100.0 U	900.0 U	1,000.0 U	1,000.0 U	900.0 U	1,000.0 U	950.0 U	960.0 U	870.0 U	880.0 U	910.0 U	1,000.0 U	96,000.0 U	100,000.0 U	930.0 U	96,000.0 U
4-Nitrophenol	940.0 U	1,100.0 U	900.0 U	1,000.0 U	1,000.0 U	900.0 U	1,000.0 U	950.0 U	960.0 U	870.0 U	880.0 U	910.0 U	1,000.0 U	96,000.0 U	100,000.0 U	930.0 U	96,000.0 U
Acenaphthene	380.0 U	39.0 J	360.0 U	410.0 U	49.0 J	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	540,000.0 E	89,000.0	130.0 J	520,000.0 E
Acenaphthylene	380.0 U	140.0 J	360.0 U	410.0 U	400.0 U	360.0 U	22.0 J	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	52,000.0	8,200.0 J	370.0 U	48,000.0
Anthracene	380.0 U	170.0 J	360.0 U	410.0 U	150.0 J	360.0 U	44.0 J	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	250,000.0	86,000.0	65.0 J	190,000.0
Benzo(a)anthracene	380.0 U	150.0 J	360.0 U	410.0 U	250.0 J	360.0 U	130.0 J	380.0 U	380.0 U	350.0 U	350.0 U	59.0 J	23.0 J	240,000.0	81,000.0	51.0 J	190,000.0
Benzo(a)pyrene	380.0 U	210.0 J	360.0 U	410.0 U	170.0 J	360.0 U	160.0 J	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	22.0 J	100,000.0	49,000.0	61.0 J	93,000.0

Table G-3

CLP SUBSURFACE SOIL SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

Sample Station	JW-SB04	JW-SB07	JW-SB08	JW-SB12	JW-SB14	JW-SB17	JW-SB18	JW-SB19	JW-SB20	JW-SB23	JW-SB25	JW-SB29	JW-SB31	JW-SB32	JW-SB33	JW-SB34	JW-SB35
Sample Depth (ft-BGS)	5-7	5-7	6-8	12-14	12-14	5-7	5-7	5-7	10-12	6-8	12-14	5-7	5-7	8-10	6-8	16-17	8-10
Sample Date	7/30/97	7/31/97	8/4/97	8/1/97	8/4/97	8/5/97	8/5/97	8/1/97	7/30/97	7/29/97	7/29/97	7/30/97	8/5/97	8/11/97	8/12/97	8/12/97	8/11/97
Semivolatile organics (µg/kg) - (Cont.)																	
Benzo(b)fluoranthene	380.0 U	440.0	360.0 U	410.0 U	200.0 J	360.0 U	300.0 J	380.0 U	380.0 U	350.0 U	350.0 U	90.0 J	52.0 J	140,000.0	59,000.0	48.0 J	110,000.0
Benzo(g,h,i)perylene	380.0 U	310.0 J	360.0 U	410.0 U	84.0 J	360.0 U	230.0 J	380.0 U	380.0 U	350.0 U	350.0 U	100.0 J	34.0 J	37,000.0 J	18,000.0 J	120.0 J	33,000.0 J
Benzo(k)fluoranthene	380.0 U	310.0 J	360.0 U	410.0 U	200.0 J	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	95.0 J	420.0 U	40,000.0	28,000.0 J	370.0 U	49,000.0
bis(2-Chloroethoxy)methane	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
bis(2-Chloroethyl) ether	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
bis(2-Ethylhexyl)phthalate	380.0 U	420.0 U	360.0 U	73.0 J	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	1,500.0 U	1,500.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
Butylbenzylphthalate	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
Carbazole	380.0 U	420.0 U	360.0 U	410.0 U	60.0 J	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	30,000.0 J	40.0 J	200,000.0
Chrysene	380.0 U	360.0 J	360.0 U	410.0 U	340.0 J	360.0 U	160.0 J	380.0 U	380.0 U	350.0 U	350.0 U	83.0 J	31.0 J	170,000.0	64,000.0	49.0 J	160,000.0
Di-n-butylphthalate	160.0 J	420.0 U	360.0 U	410.0 U	43.0 J	360.0 U	35.0 J	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	27.0 J	750,000.0 E	41,000.0 U	370.0 U	38,000.0 U
Di-n-octylphthalate	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
Dibenzo(a,h)anthracene	380.0 U	84.0 J	360.0 U	410.0 U	32.0 J	360.0 U	64.0 J	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	11,000.0 J	6,300.0 J	370.0 U	38,000.0 U
Dibenzofuran	380.0 U	42.0 J	360.0 U	410.0 U	47.0 J	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	410,000.0 E	68,000.0	82.0 J	410,000.0 E
Diethylphthalate	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
Dimethylphthalate	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
Fluoranthene	380.0 U	330.0 J	360.0 U	410.0 U	1,000.0	26.0 J	230.0	380.0 U	380.0 U	350.0 U	350.0 U	140.0 J	62.0 J	270,000.0	210,000.0	240.0 J	620,000.0 E
Fluorene	380.0 U	38.0 J	360.0 U	410.0 U	98.0 J	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	460,000.0 E	97,000.0	120.0 J	460,000.0 E
Hexachlorobenzene	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
Hexachlorobutadiene	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
Hexachlorocyclopentadiene	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
Hexachloroethane	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
Indeno(1,2,3-cd)pyrene	380.0 U	270.0 J	360.0 U	410.0 U	100.0 J	360.0 U	180.0 J	380.0 U	380.0 U	350.0 U	350.0 U	86.0 J	30.0 J	40,000.0	20,000.0 J	370.0 U	34,000.0 J
Isophorone	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
N-Nitroso-di-n-propylamine	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
N-Nitrosodiphenylamine (1)	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
Naphthalene	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	1,400,000.0 E	190,000.0	550.0	1,400,000.0 E
Nitrobenzene	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	38,000.0 U	41,000.0 U	370.0 U	38,000.0 U
Pentachlorophenol	940.0 U	1,100.0 U	24.0 J	1,000.0 U	1,000.0 U	900.0 U	1,000.0 U	950.0 U	960.0 U	870.0 U	880.0 U	910.0 U	1,000.0 U	66,000.0 J	100,000.0 U	930.0 U	57,000.0 J
Phenanthrene	380.0 U	120.0 J	360.0 U	410.0 U	710.0	37.0 J	140.0 J	380.0 U	380.0 U	350.0 U	350.0 U	100.0 J	60.0 J	1,100,000.0 E	280,000.0	390.0	890,000.0 E
Phenol	380.0 U	420.0 U	360.0 U	410.0 U	400.0 U	360.0 U	400.0 U	380.0 U	380.0 U	350.0 U	350.0 U	360.0 U	420.0 U	8,500.0 J	41,000.0 U	370.0 U	6,900.0 J
Pyrene	380.0 U	400.0 J	360.0 U	410.0 U	800.0	21.0 J	220.0	380.0 U	380.0 U	350.0 U	350.0 U	120.0 J	49.0 J	520,000.0 E	41,000.0 U	260.0 J	510,000.0 E

Table G-3

CLP SUBSURFACE SOIL SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

Sample Station	JW-SB04	JW-SB07	JW-SB08	JW-SB12	JW-SB14	JW-SB17	JW-SB18	JW-SB19	JW-SB20	JW-SB23	JW-SB25	JW-SB29	JW-SB31	JW-SB32	JW-SB33	JW-SB34	JW-SB35
Sample Depth (ft-BGS)	5-7	5-7	6-8	12-14	12-14	5-7	5-7	5-7	10-12	6-8	12-14	5-7	5-7	8-10	6-8	16-17	8-10
Sample Date	7/30/97	7/31/97	8/4/97	8/1/97	8/4/97	8/5/97	8/5/97	8/1/97	7/30/97	7/29/97	7/29/97	7/30/97	8/5/97	8/11/97	8/12/97	8/12/97	8/11/97
Pesticides/PCBs (µg/kg)																	
4,4'-DDD	3.8 U	42.0 U	3.6 U	4.1 U	4.0 U	3.6 U	4.0 U	3.8 U	44.0 J	3.5 U	35.0 U	3.6 U	4.2 U	3.8 U	9.2 PJ	3.7 U	27.0 PJ
4,4'-DDE	3.8 U	42.0 U	3.6 U	4.1 U	4.0 U	3.6 U	4.0 U	3.8 U	3.8 U	3.5 U	35.0 U	3.6 U	4.2 U	4.1 J	44.0 P	3.7 U	3.8 U
4,4'-DDT	3.8 UJ	42.0 R	3.6 U	4.1 U	4.0 U	3.6 U	4.0 U	3.8 U	3.8 UJ	3.5 UJ	35.0 U	3.6 UJ	4.2 U	3.8 U	4.1 U	3.7 U	3.8 U
Aldrin	1.9 U	22.0 R	1.8 U	2.1 U	2.0 U	1.8 U	2.1 U	2.0 U	2.0 U	1.8 U	18.0 U	1.9 U	2.2 U	2.0 U	2.1 U	1.9 U	6.7 PJ
alpha-BHC	1.9 U	22.0 U	1.8 U	2.1 U	2.0 U	1.8 U	2.1 U	2.0 U	2.0 U	1.8 UJ	18.0 U	1.9 U	2.2 U	2.0 U	2.1 U	1.9 U	2.0 U
alpha-Chlordane	1.9 UJ	22.0 U	1.8 U	2.1 U	2.0 U	1.8 U	2.1 U	2.0 U	2.0 UJ	1.8 UJ	18.0 U	1.9 UJ	2.2 U	2.0 U	2.1 U	1.9 U	2.0 U
Aroclor-1016	38.0 U	420.0 U	36.0 U	41.0 U	40.0 U	36.0 U	40.0 U	38.0 U	38.0 U	35.0 U	350.0 U	36.0 U	42.0 U	38.0 U	41.0 U	37.0 U	38.0 U
Aroclor-1221	76.0 U	860.0 U	73.0 U	84.0 U	81.0 U	73.0 U	82.0 U	77.0 U	78.0 U	70.0 U	710.0 U	74.0 U	85.0 U	77.0 U	83.0 U	75.0 U	78.0 U
Aroclor-1232	38.0 U	420.0 U	36.0 U	41.0 U	40.0 U	36.0 U	40.0 U	38.0 U	38.0 U	35.0 U	350.0 U	36.0 U	42.0 U	38.0 U	41.0 U	37.0 U	38.0 U
Aroclor-1242	38.0 U	420.0 U	36.0 U	41.0 U	40.0 U	36.0 U	40.0 U	38.0 U	38.0 U	35.0 U	350.0 U	36.0 U	42.0 U	38.0 U	41.0 U	37.0 U	38.0 U
Aroclor-1248	38.0 U	420.0 U	36.0 U	41.0 U	40.0 U	36.0 U	40.0 U	38.0 U	38.0 U	35.0 U	350.0 U	36.0 U	42.0 U	38.0 U	41.0 U	37.0 U	38.0 U
Aroclor-1254	38.0 U	420.0 U	36.0 U	41.0 U	40.0 U	36.0 U	40.0 U	38.0 U	38.0 U	35.0 U	350.0 U	36.0 U	42.0 U	38.0 U	41.0 U	37.0 U	38.0 U
Aroclor-1260	38.0 U	420.0 U	36.0 U	41.0 U	40.0 U	36.0 U	40.0 U	38.0 U	38.0 U	35.0 U	350.0 U	36.0 U	42.0 U	38.0 U	41.0 U	37.0 U	38.0 U
beta-BHC	1.9 U	22.0 U	1.8 U	2.1 U	2.0 U	1.8 U	2.1 U	2.0 U	2.0 U	1.8 U	18.0 U	1.9 U	2.2 U	2.0 U	2.1 U	1.9 U	20.0 U
delta-BHC	1.9 U	22.0 U	1.8 U	2.1 U	2.0 U	1.8 U	2.1 U	2.0 U	2.0 U	1.8 U	18.0 U	1.9 U	2.2 U	2.0 U	2.1 U	1.9 U	2.0 U
Dieldrin	3.8 U	200.0 J	3.6 U	4.1 U	4.0 U	3.6 U	4.0 U	3.8 U	36.0 J	3.5 U	35.0 U	3.6 U	4.2 U	7.4 J	55.0 PJ	3.7 U	3.8 U
Endosulfan I	1.9 U	22.0 U	1.8 U	2.1 U	2.0 U	1.8 U	2.1 U	2.0 U	2.0 U	1.8 U	18.0 U	1.9 U	2.2 U	2.0 U	2.5	1.9 U	2.0 U
Endosulfan II	3.8 U	42.0 U	3.6 U	4.1 U	4.0 U	3.6 U	4.0 U	3.8 U	3.8 U	3.5 U	35.0 U	3.6 U	4.2 U	3.8 U	4.1 U	3.7 U	3.8 U
Endosulfan sulfate	3.8 U	42.0 U	3.6 U	4.1 U	4.0 U	3.6 U	4.0 U	3.8 U	3.8 U	3.5 UJ	35.0 U	3.6 U	4.2 U	3.8 U	4.1 U	3.7 U	3.8 U
Endrin	26.0 J	42.0 UJ	3.6 U	4.1 U	4.0 U	3.6 U	4.0 U	3.8 U	3.8 U	3.5 U	35.0 U	3.6 U	4.2 U	11.0 P	4.1 U	3.7 U	29.0 PJ
Endrin aldehyde	3.8 UJ	42.0 U	3.6 U	4.1 U	4.0 U	3.6 U	4.0 U	3.8 U	3.8 UJ	3.5 UJ	35.0 U	3.6 U	4.2 U	3.8 U	4.1 U	3.7 U	3.8 U
Endrin ketone	180.0 J	42.0 U	3.6 U	4.1 U	4.0 U	3.6 U	4.0 U	3.8 U	3.8 U	9.1 J	30.0 J	3.6 U	4.2 U	3.8 U	23.0 PJ	3.7 U	3.8 U
gamma-BHC (Lindane)	1.9 U	22.0 R	1.8 U	2.1 U	2.0 U	1.8 U	2.1 U	2.0 U	2.0 U	1.8 U	18.0 U	1.9 U	2.2 U	2.0 U	2.1 U	1.9 U	2.0 U
gamma-Chlordane	1.9 U	5.5 J	1.8 U	2.1 U	2.0 U	4.0 J	2.1 U	2.0 U	4.1 J	1.8 UJ	18.0 U	1.9 U	2.2 U	2.0 U	2.1 U	1.9 U	2.0 U
Heptachlor	1.9 U	22.0 R	1.8 U	2.1 U	2.0 U	1.8 U	2.1 U	2.0 U	2.0 U	1.8 UJ	18.0 U	1.9 U	2.2 U	2.0 U	2.1 U	1.9 U	2.0 U
Heptachlor epoxide	1.9 U	22.0 U	1.8 U	2.1 U	2.0 U	1.8 U	2.1 U	2.0 U	2.0 U	1.8 UJ	18.0 U	1.9 U	2.2 U	2.0 U	2.1 U	1.9 U	2.0 U
Methoxychlor	19.0 UJ	390.0 J	18.0 U	21.0 U	20.0 U	18.0 U	21.0 U	20.0 U	20.0 UJ	18.0 UJ	22.0 J	19.0 UJ	22.0 U	20.0 U	21.0 U	19.0 U	20.0 U
Toxaphene	190.0 U	2,200.0 U	180.0 U	210.0 U	200.0 U	180.0 U	210.0 U	200.0 U	200.0 U	180.0 U	1,800.0 U	190.0 U	220.0 U	200.0 U	210.0 U	190.0 U	200.0 U

Table G-3

Key:

- B = Metals: Analyte detected below lowest calibration standard but above the instrument detection limit.
- B = Organics: Analyte found in associated blank as well as in the sample.
- E = Organics: Concentration exceeds calibration range of GS/MS instrument.
- J = Value is estimated - data quality criteria not met or value is below the contract-required quantitation limit.
- N = Metals: Spiked sample recovery not within control limits.
- P = Greater than 25% difference in detected concentrations between the two GC columns.
- R = Rejected: Quality control indicates that the result is unusable.
- U = Chemical was analyzed for, but not detected. The associated value is the sample quantitation limit (SQL).
- * = Duplicate analysis not within control limits.
- mg/kg = Milligrams per kilogram or parts per million.
- µg/kg = Micrograms per kilogram or parts per billion.
- PCBs = Polychlorinated biphenyls

Note: **Bold type** indicates that the chemical was **detected** at the indicated concentration.

G4

**CLP Surface Soil Dioxin
Samples**

Table G-4

**CLP SURFACE SOIL DIOXIN SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS**

Sample Station	JW-SS85	JW-SS86	JW-SS87	JW-SS88	JW-SS89	JW-SS90	JW-SS91	JW-SS92	JW-SS94	JW-SS95	JW-SS96	JW-SS99
Sample Depth (ft-BGS)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Sample Date	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97	7/30/97	7/31/97	7/31/97	7/31/97	7/31/97	7/31/97	7/30/97
Chlorinated Dioxins/Furans (µg/kg)												
1234678-HpCDD	387.45	564.82	6.64	532.8	248.43	3.81 J	827.79	62.64	470.37	2,260.89 E	1,585.52 E	8.17
1234678-HpCDF	20.43	30.45	0.97 U	4.87	8.45 U	0.83 U	32.41	4.15 J	36.42	246.22	19.6	0.57 U
123478-HxCDD	3.71 U	2.04 U	2.2 U	63.98 U	88.7 U	1.83 U	4.14 U	1.66 U	1.1 J	9.7	14.44 U	1.26 U
123478-HxCDF	0.85 U	0.64 U	0.61 U	4.45 U	6.09 U	0.53 U	0.8 U	0.43 U	0.47 U	4.06 J	1.83 U	0.36 U
1234789-HpCDF	1.23 J	2.03 J	1.05 U	7.55 U	9.2 U	0.91 U	2.38 J	0.74 U	4.05 J	28.93	3.21 U	0.62 U
123678-HxCDD	3.72	5.54	1.86 U	58.43 U	74.76 U	1.54 U	2.84 J	0.82 J	6.97	49.27	12.17 U	1.06 U
123678-HxCDF	0.73 U	0.55 U	0.52 U	3.79 U	5.21 U	0.45 U	0.68 U	0.37 U	0.41 U	1.99 J	1.56 U	0.31 U
12378-PeCDD	3.64 U	3.52 U	1.86 U	38.63 U	18.37 U	1.6 U	3.59 U	1.71 U	1.47 U	1.63 U	7.63 U	1.44 U
12378-PeCDF	3.69 U	3.41 U	1.37 U	78.68 U	93.89 U	1.29 U	3.63 U	1.5 U	0.99 U	1.15 U	9.03 U	1.1 U
123789-HxCDD	3.11 U	1.67 U	1.81 U	55.85 U	72.83 U	1.53 U	3.47 U	1.39 U	2.16 J	20.64	12.1 U	1.05 U
123789-HxCDF	0.75 U	0.58 U	0.58 U	4.11 U	5.58 U	0.48 U	0.75 U	0.4 U	0.42 U	0.66 U	1.67 U	0.33 U
234678-HxCDF	0.76 U	0.59 U	0.59 U	4.14 U	5.66 U	0.49 U	0.76 U	0.4 U	0.42 U	6.87	1.7 U	0.34 U
23478-PeCDF	3.03 U	2.8 U	1.13 U	67.0 U	77.21 U	1.06 U	2.98 U	1.23 U	0.82 U	0.95 U	7.43 U	0.9 U
2378-TCDD	0.96 U	0.79 U	0.53 U	7.44 U	5.24 U	0.37 U	0.68 U	0.44 U	0.29 U	0.37 U	1.48 U	0.37 U
2378-TCDF	0.83 U	0.66 U	0.35 U	15.53 U	21.02 U	0.25 U	1.24 U	0.37 U	0.21 U	0.19 U	1.74 U	0.3 U
OCDD	4,788.83 EB	20,249.7 EB	193.34 B	1,485.89 B	719.72 B	80.23 B	10,603.44 EB	1,293.21 EB	6,055.46 EB	29,573.46 EB	6,368.44 EB	128.51 B
OCDF	106.92	199.22	2.01 J	24.92	13.08	1.09 J	194.35	26.44	256.63	2,208.86 E	105.49	1.85 J
TCDD-TEF	9.36	26.98	0.26	6.84	3.22	0.12	19.71	2.07	12.44	66.4	22.53	0.21

Table G-4

Key:

- B = Organics: Analyte found in associated blank as well as in the sample.
- E = Organics: Concentration exceeds calibration range of GS/MS instrument.
- J = Value is estimated - data quality criteria not met or value is below the contract-required quantitation limit.
- U = Chemical was analyzed for, but not detected. The associated value is the sample quantitation limit (SQL).
- µg/kg = Micrograms per kilogram or parts per billion.

Note: **Bold type** indicates that the chemical was **detected** at the indicated concentration.

G5

CLP Monitoring Well Soil Samples

Table G-5

CLP MONITORING WELL SOIL SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

Sample Station	JW-MW8S	JW-MW8S	JW-MW8S	JW-MW8S	JW-MW9S	JW-MW9S	JW-MW9S	JW-MW9S	JW-MW80S
Sample Depth (ft-BGS)	5	10	15	20	5	10	15	20	15
Sample Date	8/13/97	8/13/97	8/13/97	8/13/97	8/12/97	8/12/97	8/12/97	8/12/97	8/13/97
Semivolatile organics (µg/kg)									
1,2,4-Trichlorobenzene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
1,2-Dichlorobenzene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
1,3-Dichlorobenzene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
1,4-Dichlorobenzene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
2,2'-oxybis(1-Chloropropane)	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
2,4,5-Trichlorophenol	940.0 U	870.0 U	5,200.0 U	1,000.0 U	940.0 U	920.0 U	1,100.0 U	1,000.0 U	5,200.0 U
2,4,6-Trichlorophenol	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
2,4-Dichlorophenol	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
2,4-Dimethylphenol	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
2,4-Dinitrophenol	940.0 U	870.0 U	5,200.0 U	1,000.0 U	940.0 U	920.0 U	1,100.0 U	1,000.0 U	5,200.0 U
2,4-Dinitrotoluene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
2,6-Dinitrotoluene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
2-Chloronaphthalene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
2-Chlorophenol	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
2-Methylnaphthalene	370.0 U	350.0 U	450.0 J	100.0 J	55.0 J	370.0 U	430.0 U	400.0 U	1,800.0 J
2-Methylphenol	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
2-Nitroaniline	940.0 U	870.0 U	5,200.0 U	1,000.0 U	940.0 U	920.0 U	1,100.0 U	1,000.0 U	5,200.0 U
2-Nitrophenol	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
3,3'-Dichlorobenzidine	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
3-Nitroaniline	940.0 U	870.0 U	5,200.0 U	1,000.0 U	940.0 U	920.0 U	1,100.0 U	1,000.0 U	5,200.0 U
4,6-Dinitro-2-methylphenol	940.0 U	870.0 U	5,200.0 U	1,000.0 U	940.0 U	920.0 U	1,100.0 U	1,000.0 U	5,200.0 U
4-Bromophenyl-phenylether	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
4-Chloro-3-methylphenol	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
4-Chloroaniline	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
4-Chlorophenyl-phenylether	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
4-Methylphenol	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
4-Nitroaniline	940.0 U	870.0 U	5,200.0 U	1,000.0 U	940.0 U	920.0 U	1,100.0 U	1,000.0 U	5,200.0 U
4-Nitrophenol	940.0 U	870.0 U	5,200.0 U	1,000.0 U	940.0 U	920.0 U	1,100.0 U	1,000.0 U	5,200.0 U
Acenaphthene	370.0 U	350.0 U	2,000.0 U	400.0 U	64.0 J	370.0 U	430.0 U	400.0 U	230.0 J
Acenaphthylene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Anthracene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	220.0 J
Benzo(a)anthracene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U

Table G-5									
CLP MONITORING WELL SOIL SAMPLES JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS									
Sample Station	JW-MW8S	JW-MW8S	JW-MW8S	JW-MW8S	JW-MW9S	JW-MW9S	JW-MW9S	JW-MW9S	JW-MW80S
Sample Depth (ft-BGS)	5	10	15	20	5	10	15	20	15
Sample Date	8/13/97	8/13/97	8/13/97	8/13/97	8/12/97	8/12/97	8/12/97	8/12/97	8/13/97
Semivolatile organics (µg/kg) - (Cont.)									
Benzo(a)pyrene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Benzo(b)fluoranthene	370.0 U	350.0 U	2,000.0 U	400.0 U	43.0 J	370.0 U	430.0 U	400.0 U	2,100.0 U
Benzo(g,h,i)perylene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Benzo(k)fluoranthene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
bis(2-Chloroethoxy)methane	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
bis(2-Chloroethyl) ether	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
bis(2-Ethylhexyl)phthalate	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Butylbenzylphthalate	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Carbazole	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Chrysene	370.0 U	350.0 U	2,000.0 U	400.0 U	44.0 J	370.0 U	430.0 U	400.0 U	2,100.0 U
Di-n-butylphthalate	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Di-n-octylphthalate	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Dibenzo(a,h)anthracene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Dibenzofuran	370.0 U	350.0 U	2,000.0 U	400.0 U	41.0 J	370.0 U	430.0 U	400.0 U	220.0 J
Diethylphthalate	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Dimethylphthalate	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Fluoranthene	370.0 U	64.0 J	2,000.0 U	50.0 J	140.0 J	370.0 U	430.0 U	400.0 U	2,100.0 U
Fluorene	370.0 U	350.0 U	2,000.0 U	400.0 U	52.0 J	370.0 U	430.0 U	400.0 U	300.0 J
Hexachlorobenzene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Hexachlorobutadiene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Hexachlorocyclopentadiene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Hexachloroethane	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Indeno(1,2,3-cd)pyrene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Isophorone	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
N-Nitroso-di-n-propylamine	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
N-Nitrosodiphenylamine (I)	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Naphthalene	61.0 J	67.0 J	2,000.0 U	87.0 J	440.0	370.0 U	140.0 J	130.0 J	530.0 J
Nitrobenzene	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Pentachlorophenol	940.0 U	870.0 U	8,900.0	5,600.0 E	940.0 U	920.0 U	1,100.0 U	1,000.0 U	13,000.0
Phenanthrene	370.0 U	75.0 J	680.0 J	130.0 J	180.0 J	370.0 U	67.0 J	56.0 J	1,000.0 J
Phenol	370.0 U	350.0 U	2,000.0 U	400.0 U	370.0 U	370.0 U	430.0 U	400.0 U	2,100.0 U
Pyrene	370.0 U	47.0 J	2,000.0 U	400.0 U	110.0 J	370.0 U	430.0 U	400.0 U	2,100.0 U

Table G-5

Key:

E = Organics: Concentration exceeds calibration range of GS/MS instrument.

J = Value is estimated - data quality criteria not met or value is below the contract-required quantitation limit.

U = Chemical was analyzed for, but not detected. The associated value is the sample quantitation limit (SQL).

µg/kg = Micrograms per kilogram or parts per billion.

Note: **Bold type** indicates that the chemical was **detected** at the indicated concentration.

G6

CLP Sediment Samples

Table G-6					
CLP SEDIMENT SAMPLES					
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS					
Sample Station	JW-SD01	JW-SD02	JW-SD03	JW-SD04	JW-SD05
Sample Depth (ft-BGS)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Sample Date	7/31/97	7/31/97	7/31/97	7/31/97	7/31/97
Metals (mg/kg)					
Aluminum	11,300.0	6,050.0	7,960.0	6,880.0	7,460.0
Antimony	11.1	3.7 BN	1.8 BN	11.9	13.2
Arsenic	11.5	10.8	4.1 B	14.5	15.0
Barium	155.0	110.0 *	187.0 *	142.0	126.0
Beryllium	1.3 U	0.81 B	1.6 B	1.0 U	1.1 U
Cadmium	3.0	0.63 B	1.4 B	4.6	4.8
Calcium	63,200.0	21,700.0	58,400.0	49,000.0	35,400.0
Chromium	50.2	74.6	39.7	96.0	95.9
Cobalt	7.9	7.7 B	3.3 B	12.0	12.0
Copper	84.3	91.4	52.2	228.0	204.0
Cyanide	2.3	0.56 B	1.3 B	4.1	4.2
Iron	30,900.0	40,600.0	13,800.0	77,500.0	49,300.0
Lead	157.0	103.0	65.8	188.0	203.0
Magnesium	7,680.0	4,000.0	10,300.0	20,500.0	15,100.0
Manganese	811.0	753.0	1,150.0	972.0	931.0
Mercury	0.6	0.11 B	0.25 B	2.1	1.2
Nickel	28.7	36.4	10.8 B	56.4	40.6
Potassium	1,960.0 J	1,270.0 B	917.0 B	1,180.0 J	1,410.0 J
Selenium	4.0 U	2.1	1.6 U	3.6	3.4 U
Silver	1.3 UJ	0.41 UN	0.53 UN	1.0 UJ	1.1 UJ
Sodium	1,330.0	527.0 B	5,870.0	1,890.0	1,990.0
Thallium	4.0 U	5.5	1.8 B	2.9 U	3.4 U
Vanadium	80.4	53.6	52.8	53.1	55.3
Zinc	1,540.0	1,310.0	216.0	1,210.0	1,270.0

Table G-6					
CLP SEDIMENT SAMPLES					
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS					
Sample Station	JW-SD01	JW-SD02	JW-SD03	JW-SD04	JW-SD05
Sample Depth (ft-BGS)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Sample Date	7/31/97	7/31/97	7/31/97	7/31/97	7/31/97
Volatile organics (µg/kg)					
1,1,1-Trichloroethane	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
1,1,2,2-Tetrachloroethane	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
1,1,2-Trichloroethane	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
1,1-Dichloroethane	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
1,1-Dichloroethene	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
1,2-Dichloroethane	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
1,2-Dichloroethene (total)	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
1,2-Dichloropropane	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
2-Butanone	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
2-Hexanone	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
4-Methyl-2-Pentanone	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
Acetone	45.0 J	32.0 U	5,000.0 U	3,300.0 U	4,100.0 U
Benzene	50.0 U	18.0 U	5,800.0	1,300.0 J	440.0 J
Bromodichloromethane	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
Bromoform	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
Bromomethane	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
Carbon Disulfide	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
Carbon Tetrachloride	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
Chlorobenzene	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
Chloroethane	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
Chloroform	50.0 U	18.0 U	540.0 J	3,300.0 U	4,100.0 U
Chloromethane	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
cis-1,3-Dichloropropene	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
Dibromochloromethane	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
Ethylbenzene	50.0 U	18.0 U	72,000.0	1,000.0 J	450.0 J
Methylene Chloride	7.0 J	3.0 J	5,000.0 U	3,300.0 U	1,600.0 J
Styrene	50.0 U	18.0 U	17,000.0	700.0 J	4,100.0 U
Tetrachloroethene	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
Toluene	50.0 U	2.0 J	33,000.0	1,700.0 J	690.0 J
trans-1,3-Dichloropropene	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
Trichloroethene	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
Vinyl Chloride	50.0 U	18.0 U	5,000.0 U	3,300.0 U	4,100.0 U
Xylene (total)	50.0 U	18.0 U	110,000.0	3,000.0 J	1,800.0 J

Table G-6					
CLP SEDIMENT SAMPLES					
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS					
Sample Station	JW-SD01	JW-SD02	JW-SD03	JW-SD04	JW-SD05
Sample Depth (ft-BGS)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Sample Date	7/31/97	7/31/97	7/31/97	7/31/97	7/31/97
Semivolatile organics (µg/kg)					
1,2,4-Trichlorobenzene	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
1,2-Dichlorobenzene	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
1,3-Dichlorobenzene	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
1,4-Dichlorobenzene	50,000.0 U	180,000.0 U	13,000.0 J	140,000.0 U	170,000.0 U
2,2'-oxybis(1-Chloropropane)	50,000.0 UJ	180,000.0 UJ	21,000.0 UJ	140,000.0 UJ	170,000.0 UJ
2,4,5-Trichlorophenol	120,000.0 U	450,000.0 U	52,000.0 U	350,000.0 U	430,000.0 U
2,4,6-Trichlorophenol	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
2,4-Dichlorophenol	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
2,4-Dimethylphenol	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
2,4-Dinitrophenol	120,000.0 U	450,000.0 U	52,000.0 U	350,000.0 U	430,000.0 U
2,4-Dinitrotoluene	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
2,6-Dinitrotoluene	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
2-Chloronaphthalene	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
2-Chlorophenol	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
2-Methylnaphthalene	50,000.0 U	31,000.0 J	3,400,000.0	2,000,000.0 J	4,500,000.0 J
2-Methylphenol	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
2-Nitroaniline	120,000.0 U	450,000.0 U	52,000.0 U	350,000.0 U	430,000.0 U
2-Nitrophenol	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
3,3'-Dichlorobenzidine	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
3-Nitroaniline	120,000.0 U	450,000.0 U	52,000.0 U	350,000.0 U	430,000.0 U
4,6-Dinitro-2-methylphenol	120,000.0 U	450,000.0 U	52,000.0 U	350,000.0 U	430,000.0 U
4-Bromophenyl-phenylether	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
4-Chloro-3-methylphenol	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
4-Chloroaniline	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
4-Chlorophenyl-phenylether	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
4-Methylphenol	50,000.0 U	180,000.0 U	13,000.0 J	140,000.0 U	170,000.0 U
4-Nitroaniline	120,000.0 U	450,000.0 U	52,000.0 U	350,000.0 U	430,000.0 U
4-Nitrophenol	120,000.0 U	450,000.0 U	52,000.0 U	350,000.0 U	430,000.0 U
Acenaphthene	16,000.0 J	1,600,000.0 J	2,300,000.0	3,600,000.0	7,200,000.0
Acenaphthylene	12,000.0 J	140,000.0 J	52,000.0	140,000.0	270,000.0
Anthracene	200,000.0	2,200,000.0 J	1,300,000.0 J	9,600,000.0	23,000,000.0
Benzo(a)anthracene	200,000.0	3,800,000.0	500,000.0 J	1,800,000.0 J	2,900,000.0 J
Benzo(a)pyrene	50,000.0	1,200,000.0	120,000.0	530,000.0	780,000.0

Table G-6					
CLP SEDIMENT SAMPLES					
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS					
Sample Station	JW-SD01	JW-SD02	JW-SD03	JW-SD04	JW-SD05
Sample Depth (ft-BGS)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Sample Date	7/31/97	7/31/97	7/31/97	7/31/97	7/31/97
Semivolatile organics (µg/kg) - (Cont.)					
Benzo(b)fluoranthene	86,000.0	1,400,000.0	110,000.0	700,000.0	960,000.0
Benzo(g,h,i)perylene	26,000.0 J	310,000.0	43,000.0	180,000.0	200,000.0
Benzo(k)fluoranthene	100,000.0	1,800,000.0 J	140,000.0	690,000.0	930,000.0
bis(2-Chloroethoxy)methane	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
bis(2-Chloroethyl) ether	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
bis(2-Ethylhexyl)phthalate	4,700.0 J	34,000.0 J	4,400.0 J	24,000.0 J	32,000.0 J
Butylbenzylphthalate	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
Carbazole	58,000.0	290,000.0	420,000.0 J	4,000,000.0	9,300,000.0
Chrysene	280,000.0	4,000,000.0	680,000.0 J	3,000,000.0	4,700,000.0 J
Di-n-butylphthalate	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
Di-n-octylphthalate	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
Dibenzo(a,h)anthracene	11,000.0 J	190,000.0	17,000.0 J	65,000.0 J	83,000.0 J
Dibenzofuran	19,000.0 J	1,600,000.0 J	1,400,000.0 J	3,500,000.0	7,100,000.0
Diethylphthalate	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
Dimethylphthalate	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
Fluoranthene	1,700,000.0	25,000,000.0	3,200,000.0	10,000,000.0	18,000,000.0
Fluorene	49,000.0 J	3,400,000.0 J	1,600,000.0 J	5,900,000.0	13,000,000.0
Hexachlorobenzene	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
Hexachlorobutadiene	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
Hexachlorocyclopentadiene	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
Hexachloroethane	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
Indeno(1,2,3-cd)pyrene	26,000.0 J	380,000.0	45,000.0	180,000.0	220,000.0
Isophorone	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
N-Nitroso-di-n-propylamine	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
N-Nitrosodiphenylamine (1)	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
Naphthalene	50,000.0 U	180,000.0 U	13,000,000.0	2,700,000.0 J	5,400,000.0 J
Nitrobenzene	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
Pentachlorophenol	120,000.0 U	450,000.0 U	52,000.0 U	350,000.0 U	430,000.0 U
Phenanthrene	940,000.0	27,000,000.0	5,300,000.0	19,000,000.0	41,000,000.0
Phenol	50,000.0 U	180,000.0 U	21,000.0 U	140,000.0 U	170,000.0 U
Pyrene	1,100,000.0	16,000,000.0	2,000,000.0 J	6,200,000.0	11,000,000.0

Table G-6					
CLP SEDIMENT SAMPLES					
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS					
Sample Station	JW-SD01	JW-SD02	JW-SD03	JW-SD04	JW-SD05
Sample Depth (ft-BGS)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Sample Date	7/31/97	7/31/97	7/31/97	7/31/97	7/31/97
Pesticides/PCBs (µg/kg)					
4,4'-DDD	16.0 UJ	22.0 J	32.0 J	130.0 J	270.0 J
4,4'-DDE	160.0 U	59.0 U	6.9 U	92.0 U	110.0 U
4,4'-DDT	160.0 UJ	200.0 J	14.0 J	110.0 J	110.0 UJ
Aldrin	8.5 U	14.0 J	4.6 J	29.0 J	23.0 J
alpha-BHC	8.5 U	14.0 J	3.5 U	17.0 J	21.0 J
alpha-Chlordane	33.0 J	30.0 UJ	3.5 UJ	220.0 J	200.0 J
Aroclor-1016	160.0 U	590.0 U	69.0 U	920.0 U	1,100.0 U
Aroclor-1221	340.0 U	1,200.0 U	140.0 U	1,900.0 U	2,300.0 U
Aroclor-1232	160.0 U	590.0 U	69.0 U	920.0 U	1,100.0 U
Aroclor-1242	160.0 U	590.0 U	69.0 U	920.0 U	1,100.0 U
Aroclor-1248	160.0 U	590.0 U	69.0 U	920.0 U	1,100.0 U
Aroclor-1254	160.0 U	590.0 U	69.0 U	920.0 U	1,100.0 U
Aroclor-1260	160.0 U	590.0 U	69.0 U	920.0 U	1,100.0 U
beta-BHC	8.5 UJ	8.1 J	3.5 UJ	80.0 J	71.0 J
delta-BHC	8.5 U	30.0 U	3.5 U	47.0 U	59.0 U
Dieldrin	16.0 U	120.0 J	38.0 J	36.0 J	110.0 U
Endosulfan I	37.0 J	30.0 U	3.5 U	96.0 J	59.0 U
Endosulfan II	140.0 J	32.0 J	9.8 J	460.0 J	110.0 U
Endosulfan sulfate	16.0 UJ	46.0 J	6.9 UJ	92.0 UJ	160.0 J
Endrin	82.0 J	280.0 J	15.0 J	44.0 J	58.0 J
Endrin aldehyde	75.0 J	200.0 J	88.0 J	470.0 J	530.0 J
Endrin ketone	16.0 UJ	110.0 J	82.0 J	120.0 J	92.0 J
gamma-BHC (Lindane)	8.5 U	30.0 U	3.5 U	47.0 U	59.0 U
gamma-Chlordane	85.0 U	30.0 U	3.5 U	47.0 U	59.0 U
Heptachlor	8.5 U	30.0 U	8.2 J	36.0 J	59.0 U
Heptachlor epoxide	8.5 UJ	8.9 J	6.2 J	47.0 UJ	32.0 J
Methoxychlor	85.0 UJ	300.0 UJ	180.0 J	470.0 UJ	410.0 J
Toxaphene	850.0 U	3,000.0 U	350.0 U	4,700.0 U	5,900.0 U

Table G-6

Key:

- B = Metals: Analyte detected below lowest calibration standard but above the instrument detection limit.
- B = Organics: Analyte found in associated blank as well as in the sample.
- E = Organics: Concentration exceeds calibration range of GS/MS instrument.
- J = Value is estimated - data quality criteria not met or value is below the contract-required quantitation limit.
- N = Metals: Spiked sample recovery not within control limits.
- P = Greater than 25% difference in detected concentrations between the two GC columns.
- R = Rejected: Quality control indicates that the result is unusable.
- U = Chemical was analyzed for, but not detected. The associated value is the sample quantitation limit (SQL).
- * = Duplicate analysis not within control limits.
- mg/kg = Milligrams per kilogram or parts per million.
- µg/kg = Micrograms per kilogram or parts per billion.
- PCBs = Polychlorinated biphenyls

Note: **Bold type** indicates that the chemical was **detected** at the indicated concentration.

G7

CLP Geoprobe Groundwater Samples

Table G-7A					
CLP GEOPROBE GROUNDWATER SAMPLES JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS					
Sample Station	JW-GP07	JW-GP08	JW-GP12	JW-GP18	JW-GP31
Sample Depth (ft-BGS)	20	24	24	24	24
Sample Date	7/31/97	8/4/97	8/1/97	8/5/97	8/5/97
Inorganics (mg/L)					
Aluminum	556.0	165.0	3,250.0	558.0	185.0
Antimony	2.9 J	2.2 J	2.2 J	2.8 J	2.0 U
Arsenic	4.0 U	24.3	4.0 U	4.0 U	4.0 U
Barium	96.3	394.0	132.0	113.0	99.6
Beryllium	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Calcium	182,000.0	155,000.0	110,000.0	307,000.0	309,000.0
Chromium	2.2	1.5	6.7	2.2	1.2
Cobalt	3.6 J	5.2	2.8 J	2.4 J	1.7 J
Copper	2.0 U	2.0 U	5.3	2.6	2.0 U
Cyanide	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Iron	2,060.0	4,600.0	4,020.0	1,400.0	566.0
Lead	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Magnesium	44,600.0	60,800.0	27,200.0	69,900.0	69,900.0
Manganese	87.8	3,100.0	102.0	193.0	176.0
Mercury	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ
Nickel	13.0	8.2	8.5	9.5	8.2
Potassium	3,440.0	4,470.0	5,420.0	3,930.0	3,970.0
Selenium	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Silver	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Sodium	53,900.0	35,600.0	18,700.0	33,900.0	33,000.0
Thallium	3.0 U	4.4	4.0	3.2	4.3
Vanadium	1.9	1.0 U	9.5	2.1	1.0 U
Zinc	6.6 J	10.5 J	25.6 J	18.2 J	2.2 J

Table G-7A					
CLP GEOPROBE GROUNDWATER SAMPLES JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS					
Sample Station	JW-GP07	JW-GP08	JW-GP12	JW-GP18	JW-GP31
Sample Depth (ft-BGS)	20	24	24	24	24
Sample Date	7/31/97	8/4/97	8/1/97	8/5/97	8/5/97
Volatile organics (µg/L)					
1,1,1-Trichloroethane	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
1,1,2,2-Tetrachloroethane	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
1,1,2- Trichloroethane	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
1,1-Dichloroethane	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
1,1-Dichloroethene	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichloroethane	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichloroethene (total)	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichloropropane	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
2-Butanone	10.0 U	50.0 U	10.0 U	10.0 UJ	10.0 UJ
2-Hexanone	10.0 U	50.0 U	10.0 U	10.0 UJ	10.0 UJ
4-Methyl-2-Pentanone	10.0 U	50.0 U	10.0 U	10.0 UJ	10.0 UJ
Acetone	2.0 J	35.0 J	4.0 J	3.0 J	8.0 J
Benzene	10.0 U	6,600.0 J	10.0 UJ	10.0 U	10.0 U
Bromodichloromethane	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
Bromoform	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
Bromomethane	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
Carbon Disulfide	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
Carbon Tetrachloride	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
Chlorobenzene	10.0 U	50.0 U	10.0 UJ	10.0 U	10.0 U
Chloroethane	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
Chloroform	10.0 U	8.0 J	10.0 U	10.0 U	10.0 U
Chloromethane	10.0 UJ	50.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
cis-1,3-Dichloropropene	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
Dibromochloromethane	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
Ethylbenzene	10.0 U	800.0	10.0 U	10.0 U	10.0 U
Methylene Chloride	10.0 U	10.0 J	7.0 J	9.0 J	13.0 J
Styrene	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
Tetrachloroethene	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
Toluene	2.0 J	3,400.0 J	10.0 UJ	10.0 U	10.0 U
trans-1,3-Dichloropropene	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
Trichloroethene	10.0 U	50.0 U	10.0 U	10.0 U	10.0 U
Vinyl Chloride	10.0 UJ	50.0 U	10.0 UJ	10.0 U	10.0 U
Xylene (total)	10.0 U	2,400.0	10.0 U	10.0 U	10.0 U

Table G-7A					
CLP GEOPROBE GROUNDWATER SAMPLES JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS					
Sample Station	JW-GP07	JW-GP08	JW-GP12	JW-GP18	JW-GP31
Sample Depth (ft-BGS)	20	24	24	24	24
Sample Date	7/31/97	8/4/97	8/1/97	8/5/97	8/5/97
Semivolatile organics (µg/L)					
1,2,4-Trichlorobenzene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichlorobenzene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,3-Dichlorobenzene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,4-Dichlorobenzene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,2'-oxybis(1-Chloropropane)	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 UJ
2,4,5-Trichlorophenol	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
2,4,6-Trichlorophenol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,4-Dichlorophenol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,4-Dimethylphenol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,4-Dinitrophenol	25.0 UJ	25.0 U	25.0 UJ	25.0 U	25.0 U
2,4-Dinitrotoluene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,6-Dinitrotoluene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Chloronaphthalene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Chlorophenol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Methylnaphthalene	10.0 U	22.0	10.0 U	10.0 U	10.0 U
2-Methylphenol	10.0 U	1.0 J	10.0 U	10.0 UJ	10.0 UJ
2-Nitroaniline	25.0 U	25.0 U	25.0 U	25.0 UJ	25.0 UJ
2-Nitrophenol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
3,3'-Dichlorobenzidine	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
3-Nitroaniline	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
4,6-Dinitro-2-methylphenol	25.0 UJ	25.0 U	25.0 UJ	25.0 U	25.0 U
4-Bromophenyl-phenylether	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Chloro-3-methylphenol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Chloroaniline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Chlorophenyl-phenylether	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 UJ
4-Methylphenol	10.0 U	3.0 J	10.0 U	10.0 U	10.0 U
4-Nitroaniline	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
4-Nitrophenol	25.0 UJ	25.0 U	25.0 UJ	25.0 U	25.0 U
Acenaphthene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Acenaphthylene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Anthracene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzo(a)anthracene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzo(a)pyrene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

Table G-7A					
CLP GEOPROBE GROUNDWATER SAMPLES JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS					
Sample Station	JW-GP07	JW-GP08	JW-GP12	JW-GP18	JW-GP31
Sample Depth (ft-BGS)	20	24	24	24	24
Sample Date	7/31/97	8/4/97	8/1/97	8/5/97	8/5/97
Semivolatile organics (µg/L) - (Cont.)					
Benzo(b)fluoranthene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzo(g,h,i)perylene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzo(k)fluoranthene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
bis(2-Chloroethoxy)methane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
bis(2-Chloroethyl)-ether	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
bis(2-Ethylhexyl)phthalate	10.0 U	10.0 U	29.0 U	10.0 U	10.0 U
Butylbenzylphthalate	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Carbazole	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chrysene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Di-n-butylphthalate	10.0 U	10.0 U	10.0 U	2.0 J	3.0 J
Di-n-octylphthalate	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Dibenzo(a,h)anthracene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Dibenzofuran	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Diethylphthalate	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Dimethylphthalate	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Fluoranthene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Fluorene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Hexachlorobenzene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Hexachlorobutadiene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Hexachlorocyclopentadiene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Hexachloroethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Indeno(1,2,3-cd)pyrene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Isophorone	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
N-Nitroso-di-n-propylamine	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
N-Nitrosodiphenylamine (1)	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene	10.0 U	84.0	10.0 U	10.0 U	10.0 U
Nitrobenzene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Pentachlorophenol	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
Phenanthrene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Phenol	10.0 U	10.0	10.0 U	10.0 U	10.0 U
Pyrene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

Table G-7A					
CLP GEOPROBE GROUNDWATER SAMPLES JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS					
Sample Station	JW-GP07	JW-GP08	JW-GP12	JW-GP18	JW-GP31
Sample Depth (ft-BGS)	20	24	24	24	24
Sample Date	7/31/97	8/4/97	8/1/97	8/5/97	8/5/97
Pesticides/PCBs (µg/L)					
4,4'-DDD	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aldrin	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
alpha-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
alpha-Chlordane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aroclor-1016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1221	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Aroclor-1232	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1242	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1248	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1254	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
beta-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan I	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan II	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin aldehyde	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin ketone	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
gamma-BHC (Lindane)	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-Chlordane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05 U	0.13 J	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Methoxychlor	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U

Table G-7A

Key:

- J = Value is estimated - data quality criteria not met or value is below the contract-required quantitation limit.
- U = Chemical was analyzed for, but not detected. The associated value is the sample quantitation limit (SQL).
- mg/L = Milligrams per liter or parts per million.
- µg/L = Micrograms per liter or parts per billion.
- PCBs = Polychlorinated biphenyls

Note: **Bold type** indicates that the chemical was **detected** at the indicated concentration.

Table G-7B

CLP GEOPROBE GROUNDWATER SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

[illegible]

Table G-7B

Key:

- J = Value is estimated - data quality criteria not met or value is below the contract-required quantitation limit.
- U = Chemical was analyzed for, but not detected. The associated value is the sample quantitation limit (SQL).
- X = Additional flags defined separately.
- µg/L = Micrograms per liter or parts per billion.

Note: **Bold type** indicates that the chemical was **detected** at the indicated concentration.

G8

**CLP Monitoring Well
Groundwater Samples**

Table G-8

**CLP MONITORING WELL GROUNDWATER SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS**

Sample Station	JW-MW01S	JW-MW01D	JW-MW02S	JW-MW03S	JW-MW03D	JW-MW04S	JW-MW05S	JW-MW05D	JW-MW06S	JW-MW06M	JW-MW06D	JW-MW07S
Sample Depth (ft-BGS)												
Sample Date	9/11/97	9/11/97	9/11/97	9/11/97	9/11/97	9/8/97	9/10/97	9/10/97	9/8/97	9/9/97	9/9/97	9/8/97
Inorganics (mg/L)												
Aluminum	27.8 J	36.0 J	23.6 J	64.1 J	33.1 J	23.2 J	68.2 J	45.3 J	83.4 J	9.9 UJ	138.0 J	85.1 J
Antimony	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U
Arsenic	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 UJ	24.6	2.0 U	2.0 J	3.1 J	2.2 J	2.0 UJ
Barium	98.8	832.0	107.0	78.5	736.0	92.2	372.0	492.0	123.0	227.0	833.0	103.0
Beryllium	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Cadmium	0.6 J	0.6 J	0.3 J	0.3 U	0.5 J	0.3 U	0.8 J	0.4 J	0.4	0.4	0.7	0.4
Calcium	152,000.0 J	106,000.0 J	89,600.0 J	104,000.0 J	115,000.0 J	136,000.0	139,000.0 J	129,000.0 J	87,400.0	136,000.0	119,000.0	106,000.0
Chromium	6.1 J	0.6 U	3.2 J	2.1 J	0.6 U	2.4	2.7 J	8.3 J	1.4	0.6 U	0.6 U	2.2
Cobalt	1.4 U	1.4 U	5.3	1.4 U	1.4 U	1.4 U	8.1	5.0	1.4 U	1.4 U	1.4 U	1.4 U
Copper	6.8 J	3.4 J	10.0 J	4.4 J	6.2 J	3.2 U	27.3 J	21.9 J	28.8 J	10.6 J	31.5 J	26.1 J
Cyanide	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 UJ	2.3 U	2.3 U	2.3 U	2.3 U	7.1 J	2.3 U
Iron	65.2 J	5,640.0	77.7 J	148.0 J	9,830.0	30.9 J	21,000.0	1,480.0	42.2 J	12,600.0	9,570.0	46.7 J
Lead	6.3 J	5.8 J	4.4 J	2.6 J	1.5 J	4.2 J	5.2 J	5.5 J	49.7 J	2.6 J	19.5 J	52.2 J
Magnesium	39,300.0	30,200.0	18,900.0	29,500.0	32,200.0	39,900.0	42,900.0	36,500.0	22,600.0	41,900.0	33,700.0	27,400.0
Manganese	35.6	178.0	994.0	1.1 J	194.0	16.2 J	5,810.0	362.0	8.2 J	691.0	200.0	1.0 J
Mercury	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	12.5	5.1	23.2	5.4	3.6 U	20.3	14.2	49.1	16.6	3.6 U	3.6 U	3.6 U
Potassium	2,840.0 J	6,010.0 J	9,230.0 J	4,610.0 J	5,600.0 J	3,720.0	5,960.0 J	8,160.0 J	4,320.0	5,830.0	5,550.0	5,550.0
Selenium	20.6	2.4 U	2.4 U	4.4	2.4 U	2.4 R	2.4 U	2.4	2.9 J	2.4 R	2.4 R	4.9 J
Silver	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	1.1	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Sodium	13,300.0	10,300.0	10,800.0	18,000.0	10,500.0	21,900.0	101,000.0	14,600.0	26,600.0	19,300.0	13,700.0	15,100.0
Thallium	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U
Vanadium	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	2.5	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Zinc	16.8 U	16.8 U	16.8 U	16.8 U	16.8 U	16.8 U	16.8 U	19.5 J	19.2 J	16.8 U	16.8 U	22.6 J

G8-2

Table G-8

**CLP MONITORING WELL GROUNDWATER SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS**

Sample Station	JW-MW08S	JW-MW08M	JW-MW08D	JW-MW09S	JW-MW09M	JW-MW09D	JW-MW10S	JW-MW11S	JW-MW11M	JW-MW30S	JW-MW80M	JW-MW90M
Sample Depth (ft-BGS)												
Sample Date	9/9/97	9/10/97	9/10/97	9/9/97	9/9/97	9/9/97	9/10/97	9/10/97	9/10/97	9/11/97	9/10/97	9/9/97
Inorganics (mg/L)												
Aluminum	105.0 J	32.8 J	37.5 J	35.4 J	19.9 J	69.7 J	55.2 J	51.8 J	36.2 J	31.4 J	51.6 J	45.5 J
Antimony	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U
Arsenic	64.0 J	2.0 U	2.8	2.0 UJ	3.2 J	2.0 UJ	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.1 J
Barium	385.0	220.0	695.0	219.0	308.0	317.0	92.9	76.9	164.0	78.8	226.0	312.0
Beryllium	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Cadmium	1.0	0.6 J	0.3 U	0.4	0.3 U	0.7	0.4 J	0.3 U	0.3 J	0.3 U	0.5 J	0.3 U
Calcium	135,000.0	124,000.0 J	104,000.0 J	194,000.0	141,000.0	115,000.0	126,000.0 J	96,300.0 J	129,000.0 J	103,000.0 J	128,000.0 J	141,000.0
Chromium	0.6 U	2.0 J	0.6 U	0.6 U	0.6 U	0.6 U	1.1 J	2.6 J	0.6 U	1.6 J	1.1 J	0.6 U
Cobalt	8.4	1.7	9.6	1.7	1.4 U	9.9	1.4 U	1.4 U	1.4 U	1.4 U	1.5	1.4 U
Copper	36.0 J	35.7 J	4.7 J	18.5 J	3.9 J	48.1 J	22.1 J	5.8 J	17.0 J	13.7 J	32.9 J	6.2 J
Cyanide	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
Iron	24,500.0	977.0	625.0	50.6 J	1,140.0	284.0	69.7 J	56.5 J	1,780.0	58.6 J	1,040.0	1,120.0
Lead	55.9 J	5.2 J	1.3 J	6.4 J	4.1 J	51.2 J	6.4 J	4.8 J	6.6 J	5.2 J	7.3 J	5.3 J
Magnesium	32,600.0	34,600.0	29,700.0	56,600.0	38,300.0	32,500.0	36,100.0	23,900.0	33,300.0	29,400.0	35,600.0	38,500.0
Manganese	4,890.0	489.0	403.0	888.0	443.0	299.0	1.2 J	0.7 J	893.0	2.5 J	515.0	444.0
Mercury	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	13.1	13.4	11.4	13.4	3.6 U	35.0	3.6 U	3.6 U	3.6 U	5.3	14.4	3.6 U
Potassium	3,230.0	9,330.0 J	5,600.0 J	7,260.0	8,740.0	7,500.0	4,160.0 J	6,110.0 J	7,830.0 J	4,480.0 J	9,830.0 J	8,950.0
Selenium	2.4 R	2.4 U	2.4 U	2.6 J	2.4 R	2.4 R	2.4 U	3.6	2.4 U	3.3	2.4 U	2.4 R
Silver	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Sodium	26,100.0	33,600.0	11,600.0	50,400.0	75,300.0	12,500.0	15,400.0	11,400.0	31,900.0	17,800.0	34,600.0	75,500.0
Thallium	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U
Vanadium	1.5 U	1.5 U	1.6	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Zinc	63.0 J	16.8 U	16.8 U	16.8 U	16.8 U	37.2 J	16.8 U	16.8 U	16.8 U	163.0 J	16.8 U	16.8 U

G8-3

Table G-8

CLP MONITORING WELL GROUNDWATER SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

Sample Station	JW-MW01S	JW-MW01D	JW-MW02S	JW-MW03S	JW-MW03D	JW-MW04S	JW-MW05S	JW-MW05D	JW-MW06S	JW-MW06M	JW-MW06D	JW-MW07S
Sample Depth (ft-BGS)												
Sample Date	9/11/97	9/11/97	9/11/97	9/11/97	9/11/97	9/8/97	9/10/97	9/10/97	9/8/97	9/9/97	9/9/97	9/8/97
Volatile organics (µg/l)												
1,1,1-Trichloroethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,1,2,2-Tetrachloroethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,1,2-Trichloroethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,1-Dichloroethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,1-Dichloroethene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichloroethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	12.0	10.0 U	10.0 U
1,2-Dichloroethene (total)	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichloropropane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Butanone	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Hexanone	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Methyl-2-Pentanone	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Acetone	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	930.0	10.0 U	10.0 U	75.0	10.0 U	10.0 U
Bromodichloromethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Bromoform	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Bromomethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Carbon Disulfide	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Carbon Tetrachloride	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chlorobenzene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chloroethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chloroform	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chloromethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
cis-1,3-Dichloropropene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Dibromochloromethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Ethylbenzene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	66.0 J	2.0 J	10.0 U	10.0 U	10.0 U	10.0 U
Methylene Chloride	2.0 J	3.0 J	3.0 J	2.0 J	10.0 U	10.0 U	24.0 J	2.0 J	10.0 U	8.0 J	8.0 J	10.0 U
Styrene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	65.0 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Tetrachloroethene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Toluene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	450.0	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
trans-1,3-Dichloropropene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Trichloroethene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Vinyl Chloride	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Xylene (total)	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	240.0	7.0 J	10.0 U	10.0 U	10.0 U	10.0 U

Table G-8

**CLP MONITORING WELL GROUNDWATER SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS**

Sample Station	JW-MW08S	JW-MW08M	JW-MW08D	JW-MW09S	JW-MW09M	JW-MW09D	JW-MW10S	JW-MW11S	JW-MW11M	JW-MW30S	JW-MW80M	JW-MW90M
Sample Depth (ft-BGS)												
Sample Date	9/9/97	9/10/97	9/10/97	9/9/97	9/9/97	9/9/97	9/10/97	9/10/97	9/10/97	9/11/97	9/10/97	9/9/97
Volatile organics (µg/l)												
1,1,1-Trichloroethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	19.0	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,1,2,2-Tetrachloroethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,1,2-Trichloroethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,1-Dichloroethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,1-Dichloroethene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichloroethane	10.0 U	10.0 U	10.0 U	10.0 U	3.0 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichloroethene (total)	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichloropropane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Butanone	59.0	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Hexanone	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Methyl-2-Pentanone	19.0	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Acetone	89.0	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzene	9.0 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Bromodichloromethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Bromoform	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Bromomethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Carbon Disulfide	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	2.0 J
Carbon Tetrachloride	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chlorobenzene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chloroethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chloroform	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chloromethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
cis-1,3-Dichloropropene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Dibromochloromethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Ethylbenzene	17.0	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	3.0 J
Methylene Chloride	2.0 J	3.0 J	3.0 J	2.0 J	8.0 J	8.0 J	3.0 J	3.0 U	3.0 J	2.0 J	4.0 J	2.0 J
Styrene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	9.0 J
Tetrachloroethene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	2.0 J
Toluene	65.0	2.0 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	2.0 J
trans-1,3-Dichloropropene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Trichloroethene	9.0 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Vinyl Chloride	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Xylene (total)	120.0	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	14.0

Table G-8

CLP MONITORING WELL GROUNDWATER SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

Sample Station	JW-MW01S	JW-MW01D	JW-MW02S	JW-MW03S	JW-MW03D	JW-MW04S	JW-MW05S	JW-MW05D	JW-MW06S	JW-MW06M	JW-MW06D	JW-MW07S
Sample Depth (ft-BGS)												
Sample Date	9/11/97	9/11/97	9/11/97	9/11/97	9/11/97	9/8/97	9/10/97	9/10/97	9/8/97	9/9/97	9/9/97	9/8/97
Semivolatile organics (µg/L)												
1,2,4-Trichlorobenzene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichlorobenzene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,3-Dichlorobenzene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,4-Dichlorobenzene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,2'-oxybis(1-Chloropropane)	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	100.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
2,4,5-Trichlorophenol	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	250.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
2,4,6-Trichlorophenol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,4-Dichlorophenol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,4-Dimethylphenol	10.0 U	10.0 U	1.0 J	10.0 U	10.0 U	10.0 U	15,000.0	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,4-Dinitrophenol	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 UJ	250.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ
2,4-Dinitrotoluene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,6-Dinitrotoluene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Chloronaphthalene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Chlorophenol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Methylnaphthalene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	540.0	65.0	10.0 U	10.0 U	10.0 U	10.0 U
2-Methylphenol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	21,000.0	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Nitroaniline	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 UJ	250.0 U	25.0 U	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ
2-Nitrophenol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	100.0 U	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
3,3'-Dichlorobenzidine	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	100.0 U	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
3-Nitroaniline	25.0 U	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	250.0 U	25.0 U	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ
4,6-Dinitro-2-methylphenol	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 UJ	250.0 U	25.0 U	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ
4-Bromophenyl-phenylether	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Chloro-3-methylphenol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Chloroaniline	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Chlorophenyl-phenylether	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Methylphenol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	60,000.0	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Nitroaniline	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	250.0 U	25.0 U	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ
4-Nitrophenol	25.0 UJ	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	250.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
Acenaphthene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	460.0	360.0	10.0 U	10.0 U	10.0 U	10.0 U
Acenaphthylene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	44.0 J	27.0	10.0 U	10.0 U	10.0 U	10.0 U
Anthracene	10.0 U	10.0 U	1.0 J	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzo(a)anthracene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	5.0 J	10.0 U	10.0 U	10.0 U	10.0 U
Benzo(a)pyrene	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	2.0 J	10.0 U	10.0 U	10.0 U	10.0 U

GG-6

Table G-8

**CLP MONITORING WELL GROUNDWATER SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS**

Sample Station	JW-MW08S	JW-MW08M	JW-MW08D	JW-MW09S	JW-MW09M	JW-MW09D	JW-MW10S	JW-MW11S	JW-MW11M	JW-MW30S	JW-MW80M	JW-MW90M
Sample Depth (ft-BGS)												
Sample Date	9/9/97	9/10/97	9/10/97	9/9/97	9/9/97	9/9/97	9/10/97	9/10/97	9/10/97	9/11/97	9/10/97	9/9/97
Semivolatile organics (µg/L)												
1,2,4-Trichlorobenzene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichlorobenzene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,3-Dichlorobenzene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,4-Dichlorobenzene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,2'-oxybis(1-Chloropropane)	20,000.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
2,4,5-Trichlorophenol	50,000.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
2,4,6-Trichlorophenol	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,4-Dichlorophenol	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,4-Dimethylphenol	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,4-Dinitrophenol	50,000.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ
2,4-Dinitrotoluene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,6-Dinitrotoluene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Chloronaphthalene	20,000.0 U	2.0 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Chlorophenol	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Methylnaphthalene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Methylphenol	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Nitroaniline	50,000.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ
2-Nitrophenol	20,000.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
3,3'-Dichlorobenzidine	20,000.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
3-Nitroaniline	50,000.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ
4,6-Dinitro-2-methylphenol	50,000.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ
4-Bromophenyl-phenylether	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Chloro-3-methylphenol	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Chloroaniline	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 UJ	10.0 U	10.0 U
4-Chlorophenyl-phenylether	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Methylphenol	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Nitroaniline	50,000.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ
4-Nitrophenol	50,000.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
Acenaphthene	20,000.0 U	110.0	10.0 U	1.0 J	10.0	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	110.0	9.0 J
Acenaphthylene	20,000.0 U	4.0 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	4.0 J	10.0 U
Anthracene	20,000.0 U	10.0 U	10.0 U	4.0 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzo(a)anthracene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzo(a)pyrene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

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Table G-8

**CLP MONITORING WELL GROUNDWATER SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS**

Sample Station	JW-MW01S	JW-MW01D	JW-MW02S	JW-MW03S	JW-MW03D	JW-MW04S	JW-MW05S	JW-MW05D	JW-MW06S	JW-MW06M	JW-MW06D	JW-MW07S
Sample Depth (ft-BGS)												
Sample Date	9/11/97	9/11/97	9/11/97	9/11/97	9/11/97	9/8/97	9/10/97	9/10/97	9/8/97	9/9/97	9/9/97	9/8/97
Semivolatile organics (µg/L) - (Cont.)												
Benzo(b)fluoranthene	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	2.0 J	10.0 U	10.0 U	10.0 U	10.0 U
Benzo(g,h,i)perylene	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzo(k)fluoranthene	10.0 UJ	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	100.0 UJ	2.0 J	10.0 U	10.0 U	10.0 U	10.0 U
bis(2-Chloroethoxy)methane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
bis(2-Chloroethyl) ether	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
bis(2-Ethylhexyl)phthalate	2.0 J	10.0	2.0 J	3.0 J	3.0 J	10.0 UJ	100.0 U	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
Butylbenzylphthalate	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	100.0 U	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
Carbazole	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	150.0	10.0 U	10.0 U	10.0 U	10.0 U
Chrysene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	5.0 J	10.0 U	10.0 U	10.0 U	10.0 U
Di-n-butylphthalate	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Di-n-octylphthalate	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 UJ	100.0 U	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
Dibenzo(a,h)anthracene	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Dibenzofuran	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	250.0	170.0	10.0 U	10.0 U	10.0 U	10.0 U
Diethylphthalate	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Dimethylphthalate	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Fluoranthene	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 UJ	10.0 U	18.0 J	55.0	10.0 U	10.0 U	10.0 U	10.0 U
Fluorene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	210.0	190.0	10.0 U	10.0 U	10.0 U	10.0 U
Hexachlorobenzene	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 UJ	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U
Hexachlorobutadiene	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	100.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
Hexachlorocyclopentadiene	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 UJ	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U
Hexachloroethane	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Indeno(1,2,3-cd)pyrene	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Isophorone	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
N-Nitroso-di-n-propylamine	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
N-Nitrosodiphenylamine (1)	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene	10.0 U	10.0 U	12.0	10.0 U	10.0 U	10.0 U	21,000.0	920.0	10.0 U	10.0 U	10.0 U	10.0 U
Nitrobenzene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Pentachlorophenol	25.0 U	25.0 U	48.0	25.0 U	25.0 U	25.0 UJ	1,400.0	13.0 J	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ
Phenanthrene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	220.0	240.0	10.0 U	10.0 U	10.0 U	10.0 U
Phenol	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 U	6,000.0 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Pyrene	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	12.0 J	32.0	10.0 U	10.0 U	10.0 U	10.0 U

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Table G-8

CLP MONITORING WELL GROUNDWATER SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS

Sample Station	JW-MW08S	JW-MW08M	JW-MW08D	JW-MW09S	JW-MW09M	JW-MW09D	JW-MW10S	JW-MW11S	JW-MW11M	JW-MW30S	JW-MW80M	JW-MW90M
Sample Depth (ft-BGS)												
Sample Date	9/9/97	9/10/97	9/10/97	9/9/97	9/9/97	9/9/97	9/10/97	9/10/97	9/10/97	9/11/97	9/10/97	9/9/97
Semivolatile organics (µg/L) - (Cont.)												
Benzo(b)fluoranthene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzo(g,h,i)perylene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzo(k)fluoranthene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
bis(2-Chloroethoxy)methane	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
bis(2-Chloroethyl) ether	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
bis(2-Ethylhexyl)phthalate	20,000.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 U	10.0 U	10.0 U	3.0 J	10.0 UJ	10.0 UJ
Butylbenzylphthalate	20,000.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 UJ
Carbazole	20,000.0 U	7.0 J	10.0 U	2.0 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	7.0 J	10.0 U
Chrysene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Di-n-butylphthalate	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Di-n-octylphthalate	20,000.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 UJ
Dibenzo(a,h)anthracene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Dibenzofuran	20,000.0 U	38.0	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	37.0	10.0 U
Diethylphthalate	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Dimethylphthalate	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Fluoranthene	20,000.0 U	10.0 U	10.0 U	5.0 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Fluorene	20,000.0 U	34.0	10.0 U	2.0 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	33.0	10.0 U
Hexachlorobenzene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U
Hexachlorobutadiene	20,000.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
Hexachlorocyclopentadiene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U
Hexachloroethane	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Indeno(1,2,3-cd)pyrene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Isophorone	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
N-Nitroso-di-n-propylamine	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
N-Nitrosodiphenylamine (1)	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Nitrobenzene	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Pentachlorophenol	88,000.0 J	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 UJ	25.0 U	25.0 U	25.0 U	25.0 U	25.0 UJ	25.0 UJ
Phenanthrene	20,000.0 U	3.0 J	10.0 U	4.0 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	2.0 J	10.0 U
Phenol	20,000.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 UJ	10.0 U	10.0 U
Pyrene	20,000.0 U	10.0 U	10.0 U	3.0 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

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Table G-8

**CLP MONITORING WELL GROUNDWATER SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS**

Sample Station	JW-MW01S	JW-MW01D	JW-MW02S	JW-MW03S	JW-MW03D	JW-MW04S	JW-MW05S	JW-MW05D	JW-MW06S	JW-MW06M	JW-MW06D	JW-MW07S
Sample Depth (ft-BGS)												
Sample Date	9/11/97	9/11/97	9/11/97	9/11/97	9/11/97	9/8/97	9/10/97	9/10/97	9/8/97	9/9/97	9/9/97	9/8/97
Pesticides/PCBs (µg/L)												
4,4'-DDD	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aldrin	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
alpha-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
alpha-Chlordane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.17 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aroclor-1016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1221	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 UJ	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Aroclor-1232	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1242	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1248	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1254	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
beta-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan I	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.12 J	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan II	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin aldehyde	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin ketone	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
gamma-BHC (Lindane)	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.09 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-Chlordane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.13 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Methoxychlor	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U

G8-10

Table G-8

**CLP MONITORING WELL GROUNDWATER SAMPLES
JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS**

Sample Station	JW-MW08S	JW-MW08M	JW-MW08D	JW-MW09S	JW-MW09M	JW-MW09D	JW-MW10S	JW-MW11S	JW-MW11M	JW-MW30S	JW-MW80M	JW-MW90M
Sample Depth (ft-BGS)												
Sample Date	9/9/97	9/10/97	9/10/97	9/9/97	9/9/97	9/9/97	9/10/97	9/10/97	9/10/97	9/11/97	9/10/97	9/9/97
Pesticides/PCBs (µg/L)												
4,4'-DDD	0.1 R	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1 R	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1 R	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aldrin	0.05 R	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
alpha-BHC	0.26 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
alpha-Chlordane	0.05 R	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aroclor-1016	1.0 R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1221	2.0 R	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Aroclor-1232	1.0 R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1242	1.0 R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1248	1.0 R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1254	1.0 R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0 R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
beta-BHC	0.05 R	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05 R	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1 R	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan I	0.05 R	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan II	0.1 R	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1 R	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1 R	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin aldehyde	0.1 R	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin ketone	0.1 R	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
gamma-BHC (Lindane)	0.05 R	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-Chlordane	0.05 R	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05 R	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05 R	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Methoxychlor	0.5 R	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	5.0 R	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U

Table G-8

Key:

- B = Metals: Analyte detected below lowest calibration standard but above the instrument detection limit.
- B = Organics: Analyte found in associated blank as well as in the sample.
- E = Organics: Concentration exceeds calibration range of GS/MS instrument.
- J = Value is estimated - data quality criteria not met or value is below the contract-required quantitation limit.
- N = Metals: Spiked sample recovery not within control limits.
- P = Greater than 25% difference in detected concentrations between the two GC columns.
- R = Rejected: Quality control indicates that the result is unusable.
- U = Chemical was analyzed for, but not detected. The associated value is the sample quantitation limit (SQL).
- * = Duplicate analysis not within control limits.
- mg/kg = Milligrams per kilogram or parts per million.
- µg/kg = Micrograms per kilogram or parts per billion.
- PCBs = Polychlorinated biphenyls

Note: **Bold type** indicates that the chemical was **detected** at the indicated concentration.

G9

ASC Surface Soil Screening Samples—PAHs

Jennison-Wright Analytical Data

Surface Soil Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/g)

Sample Number	SS01	Q	SS02	Q	SS03	Q	SS04	Q	SS05	Q	SS06	Q	SS07	Q	SS08	Q	SS10	Q	SS11	Q
Date Collected	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U
% Solid	97	A	97	A	79	A	93	A	91	A	95	A	98	A	98	A	95	A	94	A
PNAs		L		L		L		L		L		L		L		L		L		L
Naphthalene	57		ND		ND		ND		100		ND		ND		ND		ND		ND	
Acenaphthylene	76		ND		ND		ND		32		30		ND		ND		82		130	
1-Methylnaphthalene	32		ND		ND		ND		330		420		16		ND		95		2400	X
2-Methylnaphthalene	ND		ND		ND		ND		440		ND		ND		ND		ND		ND	
Acenaphthene	290	X	27		ND		ND		130		100		ND		ND		160		2000	X
Fluorene	ND		ND		1.9		ND		140		23		ND		ND		1.6		800	X
Phenanthrene	8.4		ND		ND		ND		450		44		2.8		ND		8.3		680	X
Anthracene	7.7		ND		ND		ND		93		24		ND		ND		5.2		150	X
Fluoranthene	34		9.7		15		ND		840	X	840	X	31		ND		110		2400	X
Pyrene	45		12		11		ND		500	X	670	X	19		ND		110		1500	X
Benzo(a)anthracene	25		4.3		3.5		ND		210	X	200	X	10		1.5		72		1200	X
Chrysene	79	X	14		14		2		180	X	230	X	26		3		160		1100	X
Benzo(b)fluoranthene	130	X	18		18		3.2		100	X	130	X	34		4.3		210	X	610	X
Benzo(k)fluoranthene	57	X	12		14		1.9		57	X	74	X	22		1.9		120	X	410	X
Benzo(a)pyrene	120	X	18		15		4.9		86	X	81	X	28		3.5		150	X	400	X
Dibenzo(a,h)anthracene	16		ND		ND		ND		16		ND		5.3		ND		28		98	
Benzo(ghi)perylene	63		16		15		1.4		24		27		34		3.7		90		86	
Indeno(1,2,3-cd)pyrene	63	X	10		14		1.4		27		29		22		ND		84	X	100	X

Jennison-Wright Analytical Data

SURFACE SOIL SCREENING SAMPLES
Polynuclear Aromatic Hydrocarbons (UG/G)

Sample Number	SS12	Q	SS13	Q	SS14	Q	SS15	Q	SS16	Q	SS17	Q	SS18	Q	SS19	Q	SS20	Q	SS21	Q
Date Collected	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/29/97	U	7/29/97	U	7/29/97	U
% Solid	96	A	96	A	96	A	96	A	75	A	90	A	71	A	97	A	97	A	98	A
PNAs		L		L		L		L		L		L		L		L		L		L
Naphthalene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Acenaphthylene	ND		ND		ND		ND		150		610	X	ND		ND		ND		ND	
1-Methylnaphthalene	ND		ND		ND		60		400		3100	X	ND		ND		ND		ND	
2-Methylnaphthalene	ND		ND		ND		ND		ND		1900	X	ND		ND		ND		ND	
Acenaphthene	ND		ND		ND		70		1000	X	1100	X	ND		ND		ND		ND	
Fluorene	ND		ND		ND		8.3		13		470	X	ND		ND		ND		ND	
Phenanthrene	1.4		2		ND		28		27		600	X	ND		ND		ND		ND	
Anthracene	ND		ND		ND		30		49		140	X	ND		ND		ND		ND	
Fluoranthene	12		18		7.4		260	X	410	X	3100	X	12		12		7.4		ND	
Pyrene	10		12		5		150	X	330	X	2800	X	11		11		68		ND	
Benzo(a)anthracene	7.5		6.1		3.5		54	X	240	X	780	X	5.4		5		2.5		ND	
Chrysene	14		12		6.7		60	X	470	X	1100	X	12		12		7.5		ND	
Benzo(b)fluoranthene	24		16		8		40		290	X	630	X	9.7		9.8		7.4		4.5	
Benzo(k)fluoranthene	19		11		5.7		26		200	X	410	X	8.3		8.1		6.8		ND	
Benzo(a)pyrene	18		12		6.8		35		230	X	290	X	8.7		13		6.5		ND	
Dibenzo(a,h)anthracene	6.7		ND		ND		5.9		40		77		4.5		ND		ND		ND	
Benzo(ghi)perylene	21		11		5.3		18		100		97	X	11		11		7.7		ND	
Indeno(1,2,3-cd)pyrene	12		8.5		3.6		15		97	X	110	X	6.6		7.7		5.7		ND	

Jennison-Wright Analytical Data

Surface Soil Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/g)

Sample Number	SS01	Q	SS02	Q	SS03	Q	SS04	Q	SS05	Q	SS06	Q	SS07	Q	SS08	Q	SS10	Q	SS11	Q
Date Collected	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U
% Solid	97	A	97	A	79	A	93	A	91	A	95	A	98	A	98	A	96	A	94	A
PNA's		L		L		L		L		L		L		L		L		L		L
Naphthalene		57		ND		ND		ND		100		ND		ND		ND		ND		ND
Acenaphthylene		76		ND		ND		ND		32		30		ND		ND		82		130
1-Methylnaphthalene		32		ND		ND		ND		330		420		16		ND		95		2400 X
2-Methylnaphthalene		ND		ND		ND		ND		440		ND		ND		ND		ND		ND
Acenaphthene		290 X		27		ND		ND		130		100		ND		ND		160		2000 X
Fluorene		ND		ND		1.9		ND		140		23		ND		ND		1.6		800 X
Phenanthrene		8.4		ND		ND		ND		450		44		2.8		ND		8.3		680 X
Anthracene		7.7		ND		ND		ND		93		24		ND		ND		5.2		150 X
Fluoranthene		34		9.7		15		ND		840 X		840 X		31		ND		110		2400 X
Pyrene		45		12		11		ND		500 X		670 X		19		ND		110		1500 X
Benzo(a)anthracene		25		4.3		3.5		ND		210 X		200 X		10		1.5		72		1200 X
Chrysene		79 X		14		14		2		180 X		230 X		26		3		160		1100 X
Benzo(b)fluoranthene		130 X		18		18		3.2		100 X		130 X		34		4.3		210 X		610 X
Benzo(k)fluoranthene		57 X		12		14		1.9		57 X		74 X		22		1.9		120 X		410 X
Benzo(a)pyrene		120 X		18		15		4.9		86 X		81 X		28		3.5		160 X		400 X
Dibenzo(a,h)anthracene		16		ND		ND		ND		16		ND		5.3		ND		28		98
Benzo(ghi)perylene		63		16		15		1.4		24		27		34		3.7		90		86
Indeno(1,2,3-cd)pyrene		63 X		10		14		1.4		27		29		22		ND		84 X		100 X

3-3

Jennison-Wright Analytical Data

Surface Soil Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/g)

Sample Number	SS12	Q	SS13	Q	SS14	Q	SS15	Q	SS16	Q	SS17	Q	SS18	Q	SS19	Q	SS20	Q	SS21	Q
Date Collected	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/28/97	U	7/29/97	U	7/29/97	U	7/29/97	U
% Solid	96	A	96	A	95	A	98	A	75	A	90	A	71	A	97	A	97	A	98	A
PNA's		L		L		L		L		L		L		L		L		L		L
Naphthalene		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND
Acenaphthylene		ND		ND		ND		ND		150		610 X		ND		ND		ND		ND
1-Methylnaphthalene		ND		ND		ND		60		400		3100 X		ND		ND		ND		ND
2-Methylnaphthalene		ND		ND		ND		ND		1900 X		ND		ND		ND		ND		ND
Acenaphthene		ND		ND		ND		70		1000 X		1100 X		ND		ND		ND		ND
Fluorene		ND		ND		ND		8.3		13		470 X		ND		ND		ND		ND
Phenanthrene		1.4		2		ND		28		27		600 X		ND		ND		ND		ND
Anthracene		ND		ND		ND		30		49		140 X		ND		ND		ND		ND
Fluoranthene		12		18		7.4		260 X		410 X		3100 X		12		12		7.4		ND
Pyrene		10		12		5		150 X		330 X		2800 X		11		11		68		ND
Benzo(a)anthracene		7.5		6.1		3.5		54 X		240 X		780 X		5.4		5		2.5		ND
Chrysene		14		12		6.7		60 X		470 X		1100 X		12		12		7.5		ND
Benzo(b)fluoranthene		24		16		8		40		290 X		630 X		9.7		9.8		7.4		4.5
Benzo(k)fluoranthene		19		11		5.7		26		200 X		410 X		8.3		8.1		6.6		ND
Benzo(a)pyrene		18		12		6.8		35		230 X		290 X		8.7		13		6.5		ND
Dibenzo(a,h)anthracene		6.7		ND		ND		5.9		40		77		4.5		ND		ND		ND
Benzo(ghi)perylene		21		11		5.3		18		100		97 X		11		11		7.7		ND
Indeno(1,2,3-cd)pyrene		12		8.5		3.6		15		97 X		110 X		6.6		7.7		5.7		ND

Jennison-Wright Analytical Data

Surface Soil Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/g)

Sample Number	SS22	Q	SS23	Q	SS24	Q	SS25	Q	SS26	Q	SS26DUP	Q	SS27	Q	SS28	Q	SS29	Q	SS30	Q
Date Collected	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U
% Solid	93	A	98	A	99	A	95	A	95	A	98	A	96	A	96	A	99	A	99	A
PNA's		L		L		L		L		L		L		L		L		L		L
Naphthalene	56		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Acenaphthylene	130		ND		47		23		220		28		ND		ND		ND		ND	
1-Methylnaphthalene	49		26		990 X		ND		710 X		140		ND		ND		ND		ND	
2-Methylnaphthalene	83		ND		ND		ND		64		ND		ND		ND		ND		ND	
Acenaphthene	1100 X		13		1000		ND		530 X		120		ND		ND		ND		ND	
Fluorene	8.6		ND		12		4.7		20		4.1		ND		ND		ND		ND	
Phenanthrene	28		2		86 X		1.4		18		4.5		ND		ND		ND		ND	
Anthracene	36		2.4		39		ND		32		4.6		ND		ND		ND		ND	
Fluoranthene	120		24		1100 X		24		860 X		220 X		ND		ND		ND		ND	
Pyrene	130		28		750 X		19		850 X		260 X		ND		ND		ND		ND	
Benzo(a)anthracene	150 X		20		310 X		9.6		300 X		83 X		ND		ND		ND		ND	
Chrysene	350 X		44		630 X		34		500 X		140 X		2.8		ND		2.3		2	
Benzo(b)fluoranthene	360 X		42		380 X		37		400 X		120 X		3.2		ND		3.7		4	
Benzo(k)fluoranthene	220 X		30		280 X		36		260 X		86 X		2.2		ND		1.9		2.3	
Benzo(a)pyrene	280 X		34		260 X		26		260 X		92 X		4.4		2.2		3.3		4.3	
Dibenzo(a,h)anthracene	49		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(ghi)perylene	120 X		22		140 X		40		78		36		4.4		ND		ND		ND	
Indeno(1,2,3-cd)pyrene	120 X		17		120 X		32		100 X		32		3.8		ND		1.9		2.2	

Jennison-Wright Analytical Data

Surface Soil Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/g)

Sample Number	SS30DUP	Q	SS32	Q	SS33	Q	SS34	Q	SS35	Q	SS36	Q	SS37	Q	SS37DUP	Q	SS38	Q	SS39	Q
Date Collected	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U
% Solid	98	A	94	A	99	A	93	A	90	A	98	A	98	A	98	A	99	A	81	A
PNA's		L		L		L		L		L		L		L		L		L		L
Naphthalene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Acenaphthylene	ND		ND		ND		ND		ND		ND		18		15		ND		ND	
1-Methylnaphthalene	ND		ND		470		ND		ND		ND		ND		ND		ND		100	
2-Methylnaphthalene	ND		ND		ND		ND		ND		ND		ND		ND		ND		52	
Acenaphthene	ND		34		ND		ND		ND		ND		88		72		ND		74	
Fluorene	ND		ND		3.6		4.3		2.4		1.9		ND		ND		1.8		8.4	
Phenanthrene	ND		ND		7.6		2.6		ND		1.8		2.1		1.9		5.6		48	
Anthracene	ND		1.3		1.3		ND		ND		ND		1.9		1.6		2.8		100 X	
Fluoranthene	ND		4.2		420		28		16		19		32		28		34		210 X	
Pyrene	ND		5.6		ND		22		13		18		48		42		23		140	
Benzo(a)anthracene	ND		5.2		52 X		10		7.4		8.5		34		31		14		75 X	
Chrysene	1.6		16		100 X		33		26		23		82 X		72		31		110 X	
Benzo(b)fluoranthene	3.5		7.4		66 X		27		24		26		140 X		120 X		33		88 X	
Benzo(k)fluoranthene	1.7		6.6		12		33		28		28		100 X		89 X		30		69 X	
Benzo(a)pyrene	3.1		9.8		22		20		19		20		140 X		120 X		33		80 X	
Dibenzo(a,h)anthracene	ND		6.9		25		7.8		7.2		ND		71		65		ND		44	
Benzo(ghi)perylene	ND		4.1		40		24		19		30		91		76		28		41	
Indeno(1,2,3-cd)pyrene	2		2.9		38		18		14		18		65 X		53 X		18		30	

Jennison-Wright Analytical Data

Surface Soil Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/g)

Sample Number	SS40	Q	SS41	Q	SS41DUP	Q	SS42	Q	SS43	Q	SS44	Q	SS45	Q	SS46	Q	SS47	Q	SS48	Q
Date Collected	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U
% Solid	98	A	99	A	99	A	97	A	99	A	99	A	99	A	99	A	98	A	95	A
PNA's		L		L		L		L		L		L		L		L		L		L
Naphthalene	33		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Acenaphthylene	24		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1-Methylnaphthalene	240		47		54		ND		25		ND		ND		ND		ND		ND	
2-Methylnaphthalene	190		33		39		ND		ND		ND		ND		ND		ND		ND	
Acenaphthene	210		14		14		ND		ND		ND		ND		ND		ND		20	
Fluorene	45		3.5		3.7		ND		1.5		4.1		2.4		ND		ND		1.8	
Phenanthrene	110 X		31		36		ND		1.7		2.1		1.3		ND		3		6.9	
Anthracene	140 X		7.6		7.8		ND		ND		ND		ND		ND		ND		ND	
Fluoranthene	340 X		100		110		5.8		31		16		10		ND		13		24	
Pyrene	230 X		65		78		4.4		27		10		5.6		ND		8		16	
Benzo(a)anthracene	150 X		40		43		2.3		9.8		13		5.2		ND		5.5		10	
Chrysene	300 X		62 X		64 X		10		39		30		14		1.7		7.4		14	
Benzo(b)fluoranthene	260 X		56 X		58 X		11		30		54 X		15		4.4		20		34	
Benzo(k)fluoranthene	210 X		45		47		6.5		22		29		12		2.1		9.6		16	
Benzo(a)pyrene	210 X		58 X		60 X		8.9		16		50		15		2.9		15		21	
Dibenzo(a,h)anthracene	130 X		36		32		3.2		ND		27		13		4.2		14		7.3	
Benzo(ghi)perylene	110		40		38		13		25		33		14		3.8		14		24	
Indeno(1,2,3-cd)pyrene	100 X		28		29		9.2		21		44		18		3.4		14		24	

Jennison-Wright Analytical Data

Surface Soil Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/g)

Sample Number	SS49	Q	SS50	Q	SS51	Q	SS52	Q	SS52DUP	Q	SS53	Q	SS55	Q	SS56	Q	SS57	Q	SS58	Q
Date Collected	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U
% Solid	99	A	98	A	92	A	95	A	95	A	96	A	98	A	99	A	98	A	99	A
PNA's		L		L		L		L		L		L		L		L		L		L
Naphthalene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Acenaphthylene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1-Methylnaphthalene	ND		ND		ND		80		81		17		ND		ND		ND		ND	
2-Methylnaphthalene	ND		ND		ND		85		68		64		ND		ND		ND		ND	
Acenaphthene	ND		ND		20		160		140		99		ND		ND		ND		ND	
Fluorene	ND		ND		1.8		9.4		6.5		8		ND		ND		ND		ND	
Phenanthrene	4.5		6.2		6		61 X		40		47		5.4		ND		ND		ND	
Anthracene	ND		ND		3		14		8.1		16		ND		ND		ND		ND	
Fluoranthene	18		19		28		180 X		180 X		140 X		15		6.4		8.2		4.7	
Pyrene	13		12		17		130		130		92		7.7		4.5		12		ND	
Benzo(a)anthracene	6.4		7		8.3		52		52		52		4.2		2.7		4.6		ND	
Chrysene	14		11		15		96 X		96 X		59 X		6		7.7		13		4.7	
Benzo(b)fluoranthene	18		31		27		140 X		140 X		69 X		4.8		8.4		8.4		10	
Benzo(k)fluoranthene	8.4		19		14		77 X		77 X		33		3.1		11		6		2.7	
Benzo(a)pyrene	15		20		18		100 X		100 X		70 X		4.9		9.1		6		3.7	
Dibenzo(a,h)anthracene	14		8		16		60		60		32		ND		3.6		6.1		3.9	
Benzo(ghi)perylene	9.5		17		15		58		58		40		ND		9.5		2.8		9.4	
Indeno(1,2,3-cd)pyrene	11		18		18		84 X		76 X		40		2.5		9.5		1.7		6.1	

Jennison-Wright Analytical Data

Surface Soil Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/g)

Sample Number	SS59	Q	SS60	Q	SS61	Q	SS62	Q	SS63	Q	SS64	Q	SS64DUP	Q	SS65	Q	SS66	Q	SS67	Q
Date Collected	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U	7/29/97	U
% Solid	100	A	98	A	99	A	99	A	98	A	99	A	98	A	98	A	97	A	96	A
PNAs		L		L		L		L		L		L		L		L		L		L
Naphthalene		ND		ND		ND		ND		ND		ND		ND		74		ND		
Acenaphthylene		ND		ND		ND		ND		16		17		ND		16		ND		
1-Methylnaphthalene		ND		ND		ND		ND		16		35		ND		120		ND		
2-Methylnaphthalene		ND		ND		ND		ND		ND		ND		ND		95		ND		
Acenaphthene		ND		ND		ND		ND		24		ND		ND		410		ND		
Fluorene		ND		ND		ND		ND		1.8		1.4		ND		4.9		ND		
Phenanthrene		ND		ND		1.7		7.2		ND		6		6		ND		58 X		5.6
Anthracene		ND		ND		ND		1.3		ND		ND		ND		7.1		4.1		
Fluoranthene		3.8		4.7		7.7		12		10		28		32		ND		120		23
Pyrene		ND		ND		4.5		6.8		7		23		26		ND		69		14
Benzo(a)anthracene		ND		ND		2.6		3.3		3.3		8.6		9.7		ND		43		9.7
Chrysene		3.9		4		5.4		5.2		7.2		24		26		ND		70 X		17
Benzo(b)fluoranthene		4.9		5		7.8		5.6		19		32		35		ND		130 X		19
Benzo(k)fluoranthene		3.1		3.2		5.6		4.2		7.3		25		22		ND		67 X		11
Benzo(a)pyrene		4.2		4.3		7.4		5.2		7.2		21		22		ND		100 X		17
Dibenzo(a,h)anthracene		ND		ND		ND		6.3		ND		6.8		8		ND		66		18
Benzo(ghi)perylene		2.2		5.3		10		4.1		11		41		36		ND		60		14
Indeno(1,2,3-cd)pyrene		3.7		2.2		6.5		3.7		7.3		31		34		ND		66 X		8.5

Jennison-Wright Analytical Data

Surface Soil Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/g)

Sample Number	SS68	Q	SS69	Q	SS70	Q	SS71	Q	SS72	Q	SS73	Q	SS74	Q	SS75	Q	SS76	Q	SS77	Q
Date Collected	7/30/97	U	7/30/97	U	7/30/97	U	7/30/97	U	7/30/97	U	7/30/97	U	7/30/97	U	7/30/97	U	7/30/97	U	7/30/97	U
% Solid	99	A	94	A	96	A	98	A	98	A	93	A	97	A	96	A	97	A	91	A
PNAs		L		L		L		L		L		L		L		L		L		L
Naphthalene		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND
Acenaphthylene		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND
1-Methylnaphthalene		34		ND		ND		ND		ND		ND		ND		ND		ND		ND
2-Methylnaphthalene		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND
Acenaphthene		ND		ND		ND		ND		ND		16		ND		ND		ND		25
Fluorene		2.9		ND		ND		ND		ND		ND		ND		ND		ND		2.2
Phenanthrene		6		ND		ND		ND		ND		5.9		2.1		ND		4.3		8.8
Anthracene		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND
Fluoranthene		37		ND		ND		ND		3.8		20		7.6		ND		12		69
Pyrene		24		ND		ND		ND		3.4		13		6.1		ND		7.4		24
Benzo(a)anthracene		9.9		ND		ND		ND		1.7		8.4		3.4		ND		4		16
Chrysene		26		ND		ND		2.2		5.7		24		5.7		ND		11		38
Benzo(b)fluoranthene		31		ND		ND		3.8		10		32		15		ND		23		54
Benzo(k)fluoranthene		28		ND		ND		1.3		5.5		17		6		ND		6.7		19
Benzo(a)pyrene		21		ND		ND		1.4		5.3		19		10		ND		11		28
Dibenzo(a,h)anthracene		7.6		ND		ND		ND		ND		3.4		ND		ND		ND		8
Benzo(ghi)perylene		35		ND		ND		ND		260		22		10		ND		12		31
Indeno(1,2,3-cd)pyrene		32		ND		ND		ND		6.6		22		10		ND		13		30

Jennison-Wright Analytical Data

Surface Soil Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/g)

Sample Number	SS78	Q	SS79	Q	SS80	Q	SS81	Q	SS82	Q	SS83	Q	SS83DUP	Q	SS84	Q		Q		Q
Date Collected	7/30/97	U	7/30/97	U	7/30/97	U	7/30/97	U	7/30/97	U	7/30/97	U	7/30/97	U	7/30/97	U		U		U
% Solid	96	A	95	A	96	A	95	A	93	A	95	A	96	A	93	A		A		A
PNAs		L		L		L		L		L		L		L		L		L		L
Naphthalene	ND		ND		ND		ND		ND		ND		ND		ND					
Acenaphthylene	ND		ND		ND		ND		ND		ND		ND		ND					
1-Methylnaphthalene	ND		ND		ND		26		ND		ND		ND		ND					
2-Methylnaphthalene	21		28		ND		37		ND		27		ND		ND					
Acenaphthene	ND		38		ND		33		ND		22		ND		ND					
Fluorene	ND		6		ND		3.4		ND		1.7		ND		ND					
Phenanthrene	4.8		35		5.1		17		13		8.2		8.6		ND					
Anthracene	ND		10		ND		1.6		ND		1.9		ND		ND					
Fluoranthene	28		54		20		63		47		44		29		ND					
Pyrene	12		23		9.7		33		19		26		11		ND					
Benzo(a)anthracene	9.5		10		5.7		24		13		20		7.9		ND					
Chrysene	20		14		10		54 X		27		35		17		ND					
Benzo(b)fluoranthene	28		13		14		96 X		41		43		25		ND					
Benzo(k)fluoranthene	9.4		6.6		4.9		44		19		21		12		ND					
Benzo(a)pyrene	12		9.9		7.4		65 X		27		30		18		ND					
Dibenzo(a,h)anthracene	3.6		ND		ND		28		17		16		10		ND					
Benzo(ghi)perylene	16		7.8		7.7		43		22		20		14		ND					
Indeno(1,2,3-cd)pyrene	14		6.7		7.3		44		22		21		14		ND					

G10

ASC Soil Boring Screening Samples—PAHs

Jennison-Wright Analytical Data

Soil Boring Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/g)

Sample Number	SB01	Q	SB01	Q	SB02	Q	SB02	Q	SB03	Q	SB03	Q	SB03DUP	Q	SB04	Q	SB04	Q	SB05	Q
Sample Depth (ft)	5-6	U	12-13	U	6-7	U	12-13	U	6-7	U	12-13	U	12-13	U	5-7	U	12-13	U	5-6	U
Date Collected	8/5/97	A	8/5/97	A	8/5/97	A	8/5/97	A	8/5/97	A	8/5/97	A	8/5/97	A	7/30/97	A	7/30/97	A	7/31/97	A
% Solid	79	L	81	L	86	L	90	L	87	L	87	L	85	L	88	L	84	L	92	L
PAHs																				
Naphthalene	150		340		ND		ND		ND		320		190		ND		ND		ND	
Acenaphthylene	ND		22		ND		ND		ND		200		ND		ND		ND		ND	
1-Methylnaphthalene	82		170		ND		ND		ND		1100		560		ND		ND		ND	
2-Methylnaphthalene	130		250		ND		ND		ND		1300		600		ND		ND		ND	
Acenaphthene	39		84		ND		ND		ND		180		ND		ND		ND		ND	
Fluorene	34		67		ND		ND		ND		200		95		ND		ND		ND	
Phenanthrene	110		200		ND		ND		ND		370		190		ND		ND		ND	
Anthracene	12		21		ND		ND		ND		40		20		ND		ND		ND	
Fluoranthene	71		140		ND		ND		ND		320		150		ND		ND		ND	
Pyrene	38		76		ND		ND		ND		130		36		ND		ND		ND	
Benzo(a)anthracene	14		27		ND		ND		ND		87		21		ND		ND		ND	
Chrysene	12		25		ND		ND		ND		29		14		ND		ND		ND	
Benzo(b)fluoranthene	6.4		14		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(k)fluoranthene	2.6		6		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)pyrene	7.2		14		ND		ND		ND		2		1.9		ND		ND		ND	
Dibenzo(a,h)anthracene	ND		ND		ND		ND		ND		4		ND		ND		ND		ND	
Benzo(ghi)perylene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Indeno(1,2,3-cd)pyrene	1.9		4.1		ND		ND		ND		ND		ND		ND		ND		ND	

Jennison-Wright Analytical Data

Soil Boring Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/g)

Sample Number	SB05	Q	SB05	Q	SB06DUP	Q	SB06	Q	SB07	Q	SB07	Q	SB08	Q	SB08	Q	SB09	Q	SB09	Q
Sample Depth (ft)	12-13	U	5-7	U	5-7	U	11-12	U	5-7	U	12-13	U	6-8	U	11-12	U	5-6	U	12-13	U
Date Collected	7/30/97	A	7/31/97	A	7/31/97	A	7/31/97	A	7/31/97	A	7/31/97	A	8/4/97	A	8/4/97	A	7/31/97	A	7/31/97	A
% Solid	79	L	87	L	90	L	76	L	84	L	90	L	93	L	80	L	86	L	73	L
PAHs																				
Naphthalene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Acenaphthylene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1-Methylnaphthalene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylnaphthalene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Acenaphthene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Fluorene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Phenanthrene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Anthracene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Fluoranthene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Pyrene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)anthracene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Chrysene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(b)fluoranthene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(k)fluoranthene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)pyrene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dibenzo(a,h)anthracene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(ghi)perylene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Indeno(1,2,3-cd)pyrene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	

Jennison-Wright Analytical Data

Soil Boring Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/g)

Sample Number	SB11	Q	SB11	Q	SB12	Q	SB12	Q	SB13	Q	SB13	Q	SB14	Q	SB14DUP	Q	SB14	Q	SB15	Q
Sample Depth (ft)	6-7	U	12-13	U	5-6	U	12-14	U	6-7	U	12-13	U	4-6	U	4-6	U	12-14	U	6-7	U
Date Collected	8/4/97	A	8/4/97	A	8/1/97	A	8/1/97	A	8/1/97	A	8/1/97	A	8/4/97	A	8/4/97	A	8/4/97	A	8/4/97	A
% Solid	94	L	79	L	80	L	82	L	89	L	83	L	93	L	93	L	87	L	92	L
PAHs																				
Naphthalene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Acenaphthylene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1-Methylnaphthalene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylnaphthalene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Acenaphthene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Fluorene	ND		ND		ND		ND		ND		ND		ND		ND		1 J		ND	
Phenanthrene	ND		ND		ND		ND		ND		ND		0.96 J		2.2 J		3.4		ND	
Anthracene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Fluoranthene	ND		ND		ND		ND		ND		ND		2.9 J		5.7		5		ND	
Pyrene	ND		ND		ND		ND		ND		ND		1.9 J		3.2		2.8 J		ND	
Benzo(a)anthracene	ND		ND		ND		ND		ND		ND		0.82 J		1.3 J		1.1 J		ND	
Chrysene	ND		ND		ND		ND		ND		ND		1 J		1.7		1 J		ND	
Benzo(b)fluoranthene	ND		ND		ND		ND		ND		ND		1.2 J		1.5		0.84 J		ND	
Benzo(k)fluoranthene	ND		ND		ND		ND		ND		ND		ND		0.92 J		ND		ND	
Benzo(a)pyrene	ND		ND		ND		ND		ND		ND		1.2 J		1.4		1 J		ND	
Dibenzo(a,h)anthracene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(ghi)perylene	ND		ND		ND		ND		ND		ND		1.1 J		1.2 J		ND		ND	
Indeno(1,2,3-cd)pyrene	ND		ND		ND		ND		ND		ND		0.73 J		ND		ND		ND	

Jennison-Wright Analytical Data

Soil Boring Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/g)

Sample Number	SB15	Q	SB16	Q	SB16DUP	Q	SB16	Q	SB17	Q	SB17	Q	SB18	Q	SB18	Q	SB19	Q	SB19	Q
Sample Depth (ft)	12-13	U	6-7	U	6-7	U	12-13	U	5-7	U	11-12	U	5-7	U	11-12	U	5-7	U	11-12	U
Date Collected	8/4/97	A	8/1/97	A	8/1/97	A	8/1/97	A	8/5/97	A	8/5/97	A	8/5/97	A	8/5/97	A	8/1/97	A	8/1/97	A
% Solid	89	L	89	L	88	L	90	L	91	L	92	L	80	L	95	L	88	L	92	L
PAHs																				
Naphthalene	ND		830		1900 X		ND		ND		ND		ND		ND		ND		ND	
Acenaphthylene	ND		34		86		ND		ND		ND		ND		ND		ND		ND	
1-Methylnaphthalene	ND		480		1100		ND		ND		ND		ND		ND		ND		ND	
2-Methylnaphthalene	ND		580		1200 X		ND		ND		ND		ND		ND		ND		ND	
Acenaphthene	ND		250		580		ND		ND		ND		ND		ND		ND		ND	
Fluorene	ND		150 X		350 X		ND		ND		ND		ND		ND		ND		ND	
Phenanthrene	ND		400 X		540 X		ND		ND		ND		ND		ND		ND		ND	
Anthracene	ND		53		89		ND		ND		ND		ND		ND		ND		ND	
Fluoranthene	ND		430		1000 X		ND		ND		ND		ND		ND		ND		ND	
Pyrene	ND		220		540		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)anthracene	ND		67		160 X		ND		ND		ND		ND		ND		ND		ND	
Chrysene	ND		63		140 X		ND		ND		ND		ND		ND		ND		ND	
Benzo(b)fluoranthene	ND		36		86		ND		ND		ND		ND		ND		ND		ND	
Benzo(k)fluoranthene	ND		19		50		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)pyrene	ND		30		83		ND		ND		ND		ND		ND		ND		ND	
Dibenzo(a,h)anthracene	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(ghi)perylene	ND		7.3		14		ND		ND		ND		ND		ND		ND		ND	
Indeno(1,2,3-cd)pyrene	ND		11		27		ND		ND		ND		ND		ND		ND		ND	

Jennison-Wright Analytical Data

Soil Boring Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/g)

Sample Number	SB20	Q	SB20	Q	SB21	Q	SB21	Q	SB22	Q	SB22	Q	SB23	Q	SB23	Q	SB24	Q	SB24	Q
Sample Depth (ft)	6-7	U	10-12	U	6-8	U	11-12	U	6-7	U	12-13	U	6-8	U	11-12	U	6-7	U	12-13	U
Date Collected	7/30/97	A	7/30/97	A	7/28/97	A	7/28/97	A	7/29/97	A	7/29/97	A	7/29/97	A	7/29/97	A	7/29/97	A	7/29/97	A
% Solid	77	L	90	L	91	L	79	L	88	L	92	L	96	L	93	L	81	L	87	L
PAHs																				
Naphthalene		ND	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Acenaphthylene		ND	ND		ND		ND		ND		ND		ND		ND		ND		ND	
1-Methylnaphthalene		ND	ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylnaphthalene		ND	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Acenaphthene		ND	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Fluorene		ND	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Phenanthrene		ND	ND		ND		ND		ND		ND		ND		ND		ND		3.4	
Anthracene		ND	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Fluoranthene		ND	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Pyrene		ND	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)anthracene		ND	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Chrysene		ND	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(b)fluoranthene		ND	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(k)fluoranthene		ND	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)pyrene		ND	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dibenzo(a,h)anthracene		ND	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(ghi)perylene		ND	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Indeno(1,2,3-cd)pyrene		ND	ND		ND		ND		ND		ND		ND		ND		ND		ND	

Jennison-Wright Analytical Data

Soil Boring Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/g)

Sample Number	SB25	Q	SB25DUP	Q	SB25	Q	SB26	Q	SB26	Q	SB27	Q	SB27	Q	SB28	Q	SB28	Q	SB28DUP	Q
Sample Depth (ft)	5.5-6.5	U	5.5-6.5	U	12-14	U	6-8	U	11-12	U	5-6	U	12-13	U	6-7	U	12-14	U	12-14	U
Date Collected	7/29/97	A	7/29/97	A	7/29/97	A	7/29/97	A	7/29/97	A	7/29/97	A	7/29/97	A	7/30/97	A	7/30/97	A	7/30/97	A
% Solid	78	L	78	L	92	L	74	L	75	L	82	L	75	L	90	L	77	L	78	L
PAHs																				
Naphthalene		ND	ND		ND		610		6700	X	70		ND		ND		ND		ND	
Acenaphthylene		ND	ND		ND		24		ND		ND		ND		ND		ND		ND	
1-Methylnaphthalene		ND	ND		ND		270		2900	X	170		17		ND		ND		ND	
2-Methylnaphthalene		ND	ND		ND		350		3100	X	170		ND		ND		ND		ND	
Acenaphthene		ND	ND		ND		150		1300	X	48		ND		ND		ND		ND	
Fluorene		ND	ND		ND		81	X	770	X	500000		ND		ND		ND		ND	
Phenanthrene		ND	ND		ND		270	X	720	X	170	X	7.5		ND		ND		ND	
Anthracene		ND	ND		ND		47		190	X	33		5.6		ND		ND		ND	
Fluoranthene		ND	ND		ND		160		1500	X	200	X	84		ND		ND		ND	
Pyrene		ND	ND		ND		85		880	X	110		51		ND		ND		ND	
Benzo(a)anthracene		ND	ND		ND		26		270	X	45		29		ND		ND		ND	
Chrysene		ND	ND		ND		30		290	X	46		31		ND		ND		ND	
Benzo(b)fluoranthene		ND	ND		ND		12		130	X	30		21		ND		ND		ND	
Benzo(k)fluoranthene		ND	ND		ND		6.6		72	X	16		13		ND		ND		ND	
Benzo(a)pyrene		ND	ND		ND		8.8		100	X	36		28		ND		ND		ND	
Dibenzo(a,h)anthracene		ND	ND		ND		ND		25		13		13		ND		ND		ND	
Benzo(ghi)perylene		ND	ND		ND		ND		28		8.5		9.3		ND		ND		ND	
Indeno(1,2,3-cd)pyrene		ND	ND		ND		2.8		700000		11		10		ND		ND		ND	

G10-4

Jennison-Wright Analytical Lab

Soil Boring Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/g)

Sample Number	SB29	Q	SB29	Q	SB30	Q	SB30	Q		Q		Q		Q		Q		Q		Q
Sample Depth (ft)	5-7	U	12-13	U	6-8	U	11-12	U		U		U		U		U		U		U
Date Collected	7/30/97	A	7/30/97	A	7/29/97	A	7/29/97	A		A		A		A		A		A		A
% Solid	91	L	79	L	92	L	84	L		L		L		L		L		L		L
PAHs																				
Naphthalene	ND		ND		ND		ND													
Acenaphthylene	ND		ND		ND		ND													
1-Methylnaphthalene	ND		ND		ND		ND													
2-Methylnaphthalene	ND		ND		ND		ND													
Acenaphthene	ND		ND		ND		ND													
Fluorene	ND		ND		ND		ND													
Phenanthrene	ND		ND		ND		ND													
Anthracene	ND		ND		ND		ND													
Fluoranthene	ND		ND		3.5		ND													
Pyrene	ND		ND		ND		ND													
Benzo(a)anthracene	ND		ND		2.3		ND													
Chrysene	ND		ND		4.7		ND													
Benzo(b)fluoranthene	ND		ND		7.8		ND													
Benzo(k)fluoranthene	ND		ND		4.9		ND													
Benzo(a)pyrene	ND		ND		7.9		ND													
Dibenzo(a,h)anthracene	ND		ND		5.2		ND													
Benzo(ghi)perylene	ND		ND		6.4		ND													
Indeno(1,2,3-cd)pyrene	ND		ND		7.6		ND													

G11

ASC Groundwater Screening Samples— PAHs

Jennison-Wright Analytical Data

Groundwater Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/L)

Sample Number	GP01-40	Q	GP02-40	Q	GP03-40	Q	GP03-40DUP	Q	GP04-25	Q	GP05-28	Q	GP06-24	Q	GP07-20	Q	GP08-24	Q	GP09-24	Q
Date Collected	8/6/97	U	8/6/97	U	8/6/97	U	8/6/97	U	7/30/97	U	7/31/97	U	7/31/97	U	7/31/97	U	8/4/97	U	7/31/97	U
		A		A		A		A		A		A		A		A		A		A
		L		L		L		L		L		L		L		L		L		L
PAHs																				
Naphthalene	2600	X	ND		ND		ND		ND		ND		ND		ND		500	X		ND
Acenaphthylene	ND		ND		ND		ND		ND		ND		ND		ND		100			ND
1-Methylnaphthalene	ND		ND		ND		ND		ND		ND		ND		ND		57			ND
2-Methylnaphthalene	ND		ND		ND		ND		ND		ND		ND		ND		200			ND
Acenaphthene	ND		ND		ND		ND		ND		ND		ND		ND		100			ND
Fluorene	58	X	ND		2.3		2.3		ND		ND		ND		ND		ND			ND
Phenanthrene	160	X	ND		ND		ND		ND		ND		ND		ND		ND			ND
Anthracene	ND		ND		ND		ND		ND		ND		ND		ND		ND			ND
Fluoranthene	530	X	ND		ND		ND		ND		ND		ND		ND		ND			ND
Pyrene	460	X	ND		ND		ND		ND		ND		ND		ND		ND			ND
Benzo(a)anthracene	190	X	ND		ND		ND		ND		ND		ND		ND		ND			ND
Chrysene	190	X	ND		ND		ND		ND		ND		ND		ND		ND			ND
Benzo(b)fluoranthene	180	X	ND		ND		ND		ND		ND		ND		ND		ND			ND
Benzo(k)fluoranthene	120	X	ND		ND		ND		ND		ND		ND		ND		ND			ND
Benzo(a)pyrene	96	X	ND		ND		ND		ND		ND		ND		ND		ND			ND
Dibenzo(a,h)anthracene	130	X	ND		ND		ND		ND		ND		ND		ND		ND			ND
Benzo(ghi)perylene	180	X	ND		ND		ND		ND		ND		ND		ND		ND			ND
Indeno(1,2,3-cd)pyrene	30	X	ND		ND		ND		ND		ND		ND		ND		ND			ND

Jennison-Wright Analytical Data

Groundwater Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/L)

Sample Number	GP11-24	Q	GP11-46	Q	GP12-24	Q	GP13-24	Q	GP14-24	Q	GP14-40	Q	GP15-24	Q	GP16-24	Q	GP16-24DUP	Q	GP17-24	Q
Date Collected	8/4/97	U	8/4/97	U	8/1/97	U	8/1/97	U	8/4/97	U	8/4/97	U	8/4/97	U	8/1/97	U	8/1/97	U	8/5/97	U
		A		A		A		A		A		A		A		A		A		A
		L		L		L		L		L		L		L		L		L		L
PAHs																				
Naphthalene	ND		61		ND		ND		ND		ND		ND		ND		ND			ND
Acenaphthylene	ND		ND		ND		ND		ND		ND		ND		ND		ND			ND
1-Methylnaphthalene	ND		18		ND		ND		ND		ND		ND		ND		ND			ND
2-Methylnaphthalene	ND		ND		ND		ND		ND		ND		ND		ND		ND			ND
Acenaphthene	ND		25		ND		ND		ND		ND		ND		ND		ND			ND
Fluorene	ND		14		ND		ND		ND		ND		ND		ND		ND			ND
Phenanthrene	ND		ND		ND		ND		ND		4.7		ND		ND		ND			ND
Anthracene	ND		ND		ND		ND		ND		ND		ND		ND		ND			ND
Fluoranthene	ND		ND		ND		ND		ND		10		ND		ND		ND			ND
Pyrene	ND		ND		ND		ND		ND		7.5		ND		ND		ND			ND
Benzo(a)anthracene	ND		ND		ND		ND		ND		4.6		ND		ND		ND			ND
Chrysene	ND		ND		ND		ND		ND		7.7		ND		ND		ND			ND
Benzo(b)fluoranthene	ND		ND		ND		ND		ND		15		ND		ND		ND			ND
Benzo(k)fluoranthene	ND		ND		ND		ND		ND		4.7		ND		ND		ND			ND
Benzo(a)pyrene	ND		ND		ND		ND		ND		5		ND		ND		ND			ND
Dibenzo(a,h)anthracene	ND		ND		ND		ND		ND		ND		ND		ND		ND			ND
Benzo(ghi)perylene	ND		ND		ND		ND		ND		ND		ND		ND		ND			ND
Indeno(1,2,3-cd)pyrene	ND		ND		ND		ND		ND		2.6		ND		ND		ND			ND

Jennison-Wright Analytical Data

Groundwater Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/L)

Sample Number	GP17-24DUP	Q	GP17-40	Q	GP18-24	Q	GP18-40	Q	GP19-24	Q	GP20-45	Q	FB02	Q		Q		Q		Q
Date Collected	8/5/97	U	8/5/97	U	8/5/97	U	8/5/97	U	8/1/97	U	7/30/97	U	8/5/97	U		U		U		U
		A		A		A		A		A		A		A		A		A		A
		L		L		L		L		L		L		L		L		L		L
PAHs																				
Naphthalene		ND	22		ND		ND		ND		ND		ND							
Acenaphthylene		ND		ND		ND		ND		ND		ND		ND						
1-Methylnaphthalene		ND		ND		ND		12		ND		ND		ND						
2-Methylnaphthalene		ND		ND		ND		ND		ND		ND		ND						
Acenaphthene		ND		ND		ND		ND		ND		ND		ND						
Fluorene		ND		ND		ND		ND		ND		ND		ND						
Phenanthrene		ND		ND		ND		ND		ND		ND		ND						
Anthracene		ND		ND		ND		ND		ND		ND		ND						
Fluoranthene		ND		ND		ND		ND		ND		ND		ND						
Pyrene		ND		ND		ND		ND		ND		ND		ND						
Benzo(a)anthracene		ND		ND		ND		ND		ND		ND		ND						
Chrysene		ND		ND		ND		ND		ND		ND		ND						
Benzo(b)fluoranthene		ND		ND		ND		ND		ND		ND		ND						
Benzo(k)fluoranthene		ND		ND		ND		ND		ND		ND		ND						
Benzo(a)pyrene		ND		ND		ND		ND		ND		ND		ND						
Dibenzo(a,h)anthracene		ND		ND		ND		ND		ND		ND		ND						
Benzo(ghi)perylene		ND		ND		ND		ND		ND		ND		ND						
Indeno(1,2,3-cd)pyrene		ND		ND		ND		ND		ND		ND		ND						

Jennison-Wright Analytical Data

Groundwater Screening Samples
Polynuclear Aromatic Hydrocarbons and Pentachlorophenol (ug/L)

Sample Number	GP32	Q	GP33	Q	GP34	Q	GP35	Q	OLD MW8S	Q	OLD MW8D	Q	OLD MW10D	Q		Q		Q		Q
Date Collected	9/3/97	U	9/3/97	U	9/3/97	U	9/3/97	U	9/3/97	U	9/3/97	U	9/3/97	U		U		U		U
		A		A		A		A		A		A		A		A		A		A
		L		L		L		L		L		L		L		L		L		L
PAHs and PCP																				
Naphthalene		ND		ND		ND		ND		ND		ND		ND						
Acenaphthylene		ND		ND		ND		ND		ND		ND		ND						
1-Methylnaphthalene		ND		ND		ND		ND		ND		ND		ND						
2-Methylnaphthalene		ND		ND		ND		ND		ND		ND		ND						
Acenaphthene		ND		ND		ND		ND		ND		ND		ND						
Fluorene		ND		ND		ND		ND		ND		ND		ND						
Phenanthrene		ND		ND		ND		ND		ND		ND		ND						
Anthracene		ND		ND		ND		ND		ND		ND		ND						
Fluoranthene		ND		ND		ND		ND		ND		ND		ND						
Pyrene		ND		ND		ND		ND		ND		ND		ND						
Benzo(a)anthracene		ND		ND		ND		ND		ND		ND		ND						
Chrysene		ND		ND		ND		ND		ND		ND		ND						
Benzo(b)fluoranthene		ND		ND		ND		ND		ND		ND		ND						
Benzo(k)fluoranthene		ND		ND		ND		ND		ND		ND		ND						
Benzo(a)pyrene		ND		ND		ND		ND		ND		ND		ND						
Dibenzo(a,h)anthracene		ND		ND		ND		ND		ND		ND		ND						
Benzo(ghi)perylene		ND		ND		ND		ND		ND		ND		ND						
Indeno(1,2,3-cd)pyrene		ND		ND		ND		ND		ND		ND		ND						
Pentachlorophenol		ND		ND		ND		ND		1600		160		16						

Jennison-Wright Analytical Data

Groundwater Screening Samples
Polynuclear Aromatic Hydrocarbons (ug/L)

Sample Number	GP17-24DUP	Q	GP17-40	Q	GP18-24	Q	GP18-40	Q	GP19-24	Q	GP20-45	Q	FB02	Q		Q		Q		Q
Date Collected	8/5/97	U	8/5/97	U	8/5/97	U	8/5/97	U	8/1/97	U	7/30/97	U	8/5/97	U		U		U		U
		A		A		A		A		A		A		A		A		A		A
		L		L		L		L		L		L		L		L		L		L
PAHs																				
Naphthalene		ND	22		ND		ND		ND		ND		ND							
Acenaphthylene		ND	ND		ND		ND		ND		ND		ND							
1-Methylnaphthalene		ND	ND		ND		12		ND		ND		ND							
2-Methylnaphthalene		ND	ND		ND		ND		ND		ND		ND							
Acenaphthene		ND	ND		ND		ND		ND		ND		ND							
Fluorene		ND	ND		ND		ND		ND		ND		ND							
Phenanthrene		ND	ND		ND		ND		ND		ND		ND							
Anthracene		ND	ND		ND		ND		ND		ND		ND							
Fluoranthene		ND	ND		ND		ND		ND		ND		ND							
Pyrene		ND	ND		ND		ND		ND		ND		ND							
Benzo(a)anthracene		ND	ND		ND		ND		ND		ND		ND							
Chrysene		ND	ND		ND		ND		ND		ND		ND							
Benzo(b)fluoranthene		ND	ND		ND		ND		ND		ND		ND							
Benzo(k)fluoranthene		ND	ND		ND		ND		ND		ND		ND							
Benzo(a)pyrene		ND	ND		ND		ND		ND		ND		ND							
Dibenzo(a,h)anthracene		ND	ND		ND		ND		ND		ND		ND							
Benzo(ghi)perylene		ND	ND		ND		ND		ND		ND		ND							
Indeno(1,2,3-cd)pyrene		ND	ND		ND		ND		ND		ND		ND							

Jennison-Wright Analytical Data

Groundwater Screening Samples
Polynuclear Aromatic Hydrocarbons and Pentachlorophenol (ug/L)

GT1-4

Sample Number	GP32	Q	GP33	Q	GP34	Q	GP35	Q	OLD MW8S	Q	OLD MW8D	Q	OLD MW10D	Q		Q		Q		Q
Date Collected	9/3/97	U	9/3/97	U	9/3/97	U	9/3/97	U	9/3/97	U	9/3/97	U	9/3/97	U		U		U		U
		A		A		A		A		A		A		A		A		A		A
		L		L		L		L		L		L		L		L		L		L
PAHs and PCP																				
Naphthalene		ND	ND		ND		ND		ND		ND		ND							
Acenaphthylene		ND	ND		ND		ND		ND		ND		ND							
1-Methylnaphthalene		ND	ND		ND		ND		ND		ND		ND							
2-Methylnaphthalene		ND	ND		ND		ND		ND		ND		ND							
Acenaphthene		ND	ND		ND		ND		ND		ND		ND							
Fluorene		ND	ND		ND		ND		ND		ND		ND							
Phenanthrene		ND	ND		ND		ND		ND		ND		ND							
Anthracene		ND	ND		ND		ND		ND		ND		ND							
Fluoranthene		ND	ND		ND		ND		ND		ND		ND							
Pyrene		ND	ND		ND		ND		ND		ND		ND							
Benzo(a)anthracene		ND	ND		ND		ND		ND		ND		ND							
Chrysene		ND	ND		ND		ND		ND		ND		ND							
Benzo(b)fluoranthene		ND	ND		ND		ND		ND		ND		ND							
Benzo(k)fluoranthene		ND	ND		ND		ND		ND		ND		ND							
Benzo(a)pyrene		ND	ND		ND		ND		ND		ND		ND							
Dibenzo(a,h)anthracene		ND	ND		ND		ND		ND		ND		ND							
Benzo(ghi)perylene		ND	ND		ND		ND		ND		ND		ND							
Indeno(1,2,3-cd)pyrene		ND	ND		ND		ND		ND		ND		ND							
Pentachlorophenol		ND	ND		ND		ND		1600		160		16							

Jennison-Wright Analytical Data

Groundwater Screening Samples
Polynuclear Aromatic Hydrocarbons and Pentachlorophenol (ug/L)

Sample Number	GP36-24	Q	GP36-40	Q	GP37-24	Q	GP37-40	Q	GP38-24	Q	GP38-40	Q	GP39-40	Q	GP40-40	Q	GP41-24	Q	GP42-24	Q
Date Collected	12/12/97	U	12/12/97	U	12/11/97	U	12/12/97	U	12/10/97	U	12/10/97	U	12/10/07	U	12/11/97	U	12/11/97	U	12/11/97	U
		A		A		A		A		A		A		A		A		A		A
		L		L		L		L		L		L		L		L		L		L
PAHs and PCP																				
Naphthalene		ND		ND		ND		ND		2600	X		ND		ND		ND		ND	
Acenaphthylene		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND
1-Methylnaphthalene		ND		ND		ND		ND		570	X		ND		ND		ND		ND	
2-Methylnaphthalene		ND		ND		ND		ND		470	X		ND		ND		ND		ND	
Acenaphthene		ND		ND		ND		ND		330	X		ND		ND		ND		ND	
Fluorene		ND		ND		ND		ND		81	X		ND		ND		ND		ND	
Phenanthrene		ND		ND		ND		ND		42	X		ND		ND		ND		ND	
Anthracene		ND		ND		ND		ND		3.6			ND		ND		ND		ND	
Fluoranthene		ND		ND		ND		ND		ND			ND		ND		ND		ND	
Pyrene		ND		ND		ND		ND		ND			ND		ND		ND		ND	
Benzo(a)anthracene		ND		ND		ND		ND		ND			ND		ND		ND		ND	
Chrysene		ND		ND		ND		ND		ND			ND		ND		ND		ND	
Benzo(b)fluoranthene		ND		ND		ND		ND		3.4			ND		ND		ND		ND	
Benzo(k)fluoranthene		ND		ND		ND		ND		ND			ND		ND		ND		ND	
Benzo(a)pyrene		ND		ND		ND		ND		ND			ND		ND		ND		ND	
Dibenzo(a,h)anthracene		ND		ND		ND		ND		ND			ND		ND		ND		ND	
Benzo(ghi)perylene		ND		ND		ND		ND		ND			ND		ND		ND		ND	
Indeno(1,2,3-cd)pyrene		ND		ND		ND		ND		ND			ND		ND		ND		ND	
Pentachlorophenol		ND		ND		ND		ND		430			ND		ND		ND		ND	

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ASC Miscellaneous Parameters

Jennison-Wright Analytical Data

Surface Soil and Sediment Samples
TCLP Volatile Organics (ug/L)

Sample Number	SS89	Q	SD04	Q	SB32	Q		Q		Q		Q		Q		Q		Q
Sample Depth (ft)		U		U	8 - 10	U		U		U		U		U		U		U
Date Collected	7/30/97	A	7/31/97	A	8/11/97	A		A		A		A		A		A		A
% Solid		L		L		L		L		L		L		L		L		L
TCLP Volatile Organics																		
Vinyl Chloride		ND		ND		ND												
1,1-Dichloroethene		ND		ND		ND												
Chloroform		ND		ND		ND												
1,2-Dichloroethane		ND		ND		ND												
2-Butanone (MEK)		ND		ND		ND												
Carbon Tetrachloride		ND		ND		ND												
Trichloroethene		ND		ND		ND												
Benzene		ND		ND		ND												
Tetrachloroethene		ND		ND		ND												
Chlorobenzene		ND		ND		ND												
1,4-Dichlorobenzene		ND		ND		ND												

Jennison-Wright Analytical Data

Surface Soil and Sediment Samples
TCLP Semi-Volatile Organics (ug/L)

Sample Number	SS89	Q	SD04	Q	SB32	Q		Q		Q		Q		Q		Q		Q
Sample Depth (ft)		U		U	8 - 10	U		U		U		U		U		U		U
Date Collected	7/30/97	A	7/31/97	A	8/11/97	A		A		A		A		A		A		A
% Solid		L		L		L		L		L		L		L		L		L
TCLP Semi-Volatile Organics																		
Phenol		120 J		ND		500												
bis(2-Chloroethyl) Ether		ND		ND		ND												
1,4-Dichlorobenzene		ND		ND		ND												
1,2-Dichlorobenzene		ND		ND		ND												
Hexachloroethane		ND		ND		ND												
Nitrobenzene		ND		ND		ND												
2,4,6-Trichlorophenol		ND		ND		ND												
2-Methylphenol		190 J		59 J		740												
4-Methylphenol		520		110 J		2200 E												
Hexachlorobutadiene		ND		ND		ND												
2,4,5-Trichlorotoluene		ND		ND		ND												
2,4-Dinitrotoluene		ND		ND		ND												
Hexachlorobenzene		ND		ND		ND												
Pentachlorophenol		ND		ND		ND												
Pyridine		ND		ND		18 J												

J - Estimated value.

E - Extended value (outside the calibrated range of the instrument on the high side).

ND - Value below detection limits.

Jennison-Wright Analytical Data

Surface Soil and Sediment Samples
TCLP Pesticide (ug/L) and Herbicide (mg/L)

Sample Number	SS89	Q	SD04	Q	SB32	Q		Q		Q		Q		Q		Q		Q
Sample Depth (ft)		U		U	8 - 10	U		U		U		U		U		U		U
Date Collected	7/30/97	A	7/31/97	A	8/11/97	A		A		A		A		A		A		A
% Solid		L		L		L		L		L		L		L		L		L
TCLP Pesticide/Herbicide																		
Lindane		ND		ND		ND												
Heptachlor		ND		ND		ND												
Aldrin		ND		ND		ND												
Heptachlor epoxide		ND		ND		ND												
Endrin		ND		ND		ND												
Methoxychlor		ND		ND		ND												
alpha-Chlordane		ND		ND		ND												
gamma-Chlordane		ND		ND		ND												
Toxaphene		ND		ND		ND												
2,4-D		ND		ND		ND												
2,4,5-TP		ND		ND		ND												

Jennison-Wright Analytical Data

Surface Soil and Sediment Samples
TCLP Metals (mg/L)

Sample Number	SS89	Q	SD04	Q	SB32	Q		Q		Q		Q		Q		Q		Q
Sample Depth (ft)		U		U	8 - 10	U		U		U		U		U		U		U
Date Collected	7/30/97	A	7/31/97	A	8/11/97	A		A		A		A		A		A		A
% Solid		L		L		L		L		L		L		L		L		L
TCLP Metal																		
Arsenic		ND		ND		ND												
Barium		0.18 B		0.91 B		0.53 B												
Cadmium		0.0015 B		ND		ND												
Chromium		0.0053 B		ND		0.0058 B												
Lead		0.02 B		0.048 B		ND												
Mercury		ND		ND		ND												
Selenium		ND		ND		0.049 B												
Silver		ND		ND		ND												

B - Values between instrument detection limits and the regulatory limits.

ND - Value below detection limits.

Jennison-Wright Analytical Data

Surface Soil and Sediment Samples
TCLP and Miscellaneous Parameters

	Sample Number	SS89	Q	SD04	Q		Q	SB32	Q	MW8S-20	Q	MW9S-20	Q		Q		Q		Q
	Sample Depth (ft)		U		U		U	8 - 10	U		U		U		U		U		U
	Date Collected	7/30/97	A	7/31/97	A	BLANK	A	8/11/97	A	8/13/97	A	8/12/97	A		A		A		A
	% Solid		L		L		L		L		L		L		L		L		L
TCLP Misc.																			
Sulfide-Releasable (mg/kg)		ND		ND		NA		ND		NA		NA							
Cyanide-Releasable (mg/kg)		ND		ND		ND		ND		NA		NA							
Ignitability of Solids		does not		does not		NA		does not		NA		NA							
BTU (btu/lb.)		8800		ND		NA		ND		NA		NA							
Paint Filter		negative		positive		NA		negative		NA		NA							
Ash (%)		36		14		NA		82		NA		NA							
TOC (mg/kg)		NA		NA		NA		NA		5600		5700							
pH		NA		NA		NA		NA		8.2		8							

NA - Not applicable.

ND - Value below detection limits.

Jennison-Wright Analytical Data

Background Surface Soil Samples
TAL Metals (mg/kg)

Sample Number	SS100	Q	SS101	Q	SS102	Q	SS103	Q		Q		Q		Q		Q		Q
Date Collected	12/10/97	U	12/10/97	U	12/10/97	U	12/10/97	U		U		U		U		U		U
% Solid	82	A	81	A	74	A	76	A		A		A		A		A		A
METALS		L		L		L		L		L		L		L		L		L
Arsenic	8.1		7.9		7.3		8.2											
Lead	40		12		39		58											
Selenium	0.84		0.81		2.3		3.5											
Thallium	1		1.9		0.8		0.78											
Aluminum	8700		6500		8400		6900											
Antimony	ND		ND		ND		ND											
Barium	120		92		430		460											
Beryllium	ND		ND		ND		ND											
Cadmium	ND		ND		1.1		1.1											
Calcium	38000		39000		7700		7900											
Chromium Total	15		13		15		13											
Cobalt	6.8		6.1		6.7		6.6											
Copper	31		15		17		17											
Iron	15000		14000		16000		15000											
Magnesium	16000		21000		4700		4500											
Manganese	550		500		530		550											
Nickel	18		14		17		16											
Potassium	2200		1300		1400		1200											
Silver	ND		ND		ND		ND											
Sodium	ND		1200		290		140											
Vanadium	30		25		26		22											
Zinc	200		55		220		220											
Mercury	0.02		ND		0.02		ND											

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Jennison-Wright Analytical Data

Biofeasibility Study Results (mg/L except pH)

Parameter	Sample Number	SB32	Q	SB33	Q	MW-5S	Q	MW-10S	Q		Q		Q		Q		Q		Q
	Sample Depth (ft)	6-7	U	12-13	U	NA	U	NA	U		U		U		U		U		U
	Date Collected	8/11/97	A	8/12/97	A	8/12/97	U	8/12/97	A		A		A		A		A		A
			L		L		L		L		L		L		L		L		L
Ammonia		18.5		162		1.46		0.22											
Nitrate		<1.0		35.8		10.8		3.89											
Nitrite		<1.0		<1.0		<0.1		<0.1											
pH		5.92		8.85		7.01		7.17											
o-Phosphorus		2.85		6.75		<0.01		0.027											
Total Organic Carbon		420		33,100		588		9.3											
Sulfate		<100		<500		53		117											
Total Iron		16,000		19,500		21.4		20.7											
Chemical Oxygen Demand		NA		NA		990		NA											

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PCP Immunoassay Screening

Jennison-Wright Analytical Data

Surface Soil Screening Samples
Pentachlorophenol Immunoassay Screening (ppm)

Sample ID	Results
SS01	>50
SS02	>5, <50
SS03	>0.5, <5
SS04	<0.5
SS05	>50
SS06	>50
SS07	>0.5, <5
SS08	<0.5
SS10	>5, <50
SS11	>5, <50
SS12	<0.5
SS13	<0.5
SS14	<0.5
SS15	>5, <50
SS16	>0.5, <5
SS17	>0.5, <5
SS18	<0.5
SS18DUP	<0.5
SS19	>0.5, <5
SS20	>0.5, <5
SS21	>0.5, <5

Sample ID	Results
SS22	>50
SS23	>0.5, <5
SS24	>0.5, <5
SS25	>0.5, <5
SS26	>0.5, <5
SS27	>0.5, <5
SS28	<0.5
SS29	<0.5
SS30	<0.5
SS32	>0.5, <5
SS33	>0.5, <5
SS34	>0.5, <5
SS35	>0.5, <5
SS36	>0.5, <5
SS37	>5, <50
SS38	>0.5, <5
SS39	>5, <50
SS40	>5, <50
SS41	>0.5, <5
SS42	>0.5, <5
SS42DUP	>0.5, <5

Sample ID	Results
SS43	<0.5
SS44	>0.5, <5
SS45	<0.5
SS46	<0.5
SS47	<0.5
SS48	>0.5, <5
SS49	>0.5, <5
SS50	>0.5, <5
SS51	>0.5, <5
SS52	>0.5, <5
SS53	>0.5, <5
SS55	>0.5, <5
SS56	<0.5
SS57	<0.5
SS58	<0.5
SS59	<0.5
SS60	<0.5
SS61	>0.5, <5
SS62	>0.5, <5
SS63	>0.5, <5
SS64	>5, <50

Sample ID	Results
SS65	<0.5
SS66	>5, <50
SS67	>0.5, <5
SS68	<0.5
SS69	<0.5
SS69DUP	<0.5
SS70	<0.5
SS71	<0.5
SS72	<0.5
SS73	>0.5, <5
SS74	>0.5, <5
SS75	<0.5
SS76	>0.5, <5
SS77	>0.5, <5
SS78	>5, <50
SS79	>0.5, <5
SS80	<0.5
SS81	>0.5, <5
SS82	>0.5, <5
SS83	>0.5, <5
SS84	>0.5, <5

Jennison-Wright Analytical Data

Soil Boring Screening Samples
Pentachlorophenol Immunoassay Screening (ppm)

Sample ID	Results
SB01 (5-6)	<0.5
SB01 (12-13)	>0.5, <5
SB02 (6-7)	<0.5
SB02 (12-13)	<0.5
SB03 (6-7)	<0.5
SB03 (12-13)	>50
SB04 (5-7)	<0.5
SB04 (12-13)	<0.5
SB05 (5-6)	<0.5
SB05 (12-13)	<0.5
SB06 (5-7)	<0.5
SB06 (12-13)	<0.5
SB07 (5-7)	<0.5
SB07 (12-13)	<0.5
SB08 (6-8)	<0.5
SB08 (11-12)	<0.5
SB09 (5-6)	<0.5
SB09 (12-13)	<0.5
SB11 (6-7)	<0.5
SB11 (12-13)	<0.5

Sample ID	Results
SB12 (5-6)	<0.5
SB12 (12-14)	<0.5
SB13 (6-7)	<0.5
SB13 (12-13)	<0.5
SB14 (4-6)	<0.5
SB14 (12-14)	<0.5
SB15 (6-7)	<0.5
SB15 (12-13)	<0.5
SB16 (6-7)	>50
SB16 (12-13)	<0.5
SB17 (5-7)	<0.5
SB17 (11-12)	<0.5
SB18 (5-7)	<0.5
SB18 (11-12)	<0.5
SB19 (5-7)	<0.5
SB19 (11-12)	<0.5
SB20 (6-7)	<0.5
SB20 (10-12)	<0.5
SB21 (5-7)	<0.5
SB21 (11-12)	<0.5

Sample ID	Results
SB22 (6-7)	<0.5
SB22 (12-13)	<0.5
SB23 (6-8)	<0.5
SB23 (11-12)	<0.5
SB24 (6-8)	<0.5
SB24 (12-13)	<0.5
SB25 (5.5-6.5)	<0.5
SB25 (12-14)	<0.5
SB25 (12-14)DUP	<0.5
SB26 (6-8)	<0.5
SB26 (11-12)	>0.5, <5
SB27 (5-6)	<0.5
SB27 (12-13)	<0.5
SB28 (5-7)	<0.5
SB28 (12-14)	<0.5
SB29 (5-7)	<0.5
SB29 (12-13)	<0.5
SB30 (6-8)	<0.5
SB30 (11-12)	<0.5

Jennison-Wright Analytical Data

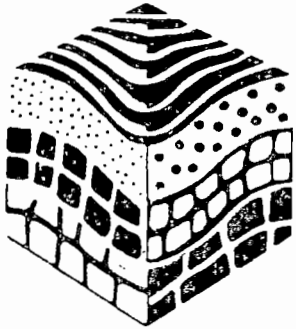
Geoprobe Groundwater Screening Samples
Pentachlorophenol Immunoassay Screening (ppb)

Sample ID	Results
GP01-40	>100
GP02-40	>5, <50
GP03-40	>5, <50
GP04-25	>50, <100
GP05-28	>5, <50
GP06-24	>5, <50
GP07-20	<5
GP08-24	>100
GP09-24	<5
GP11-24	>100
GP11-46	>100
GP12-24	<5

Sample ID	Results
GP13-24	>100
GP14-24	>5, <50
GP14-40	<5
GP15-24	<5
GP16-24	>100
GP17-24	<5
GP17-40	>100
GP18-24	<5
GP18-40	>100
GP19-24	<5
GP20-45	>5, <50

H

Grain Size Analysis Results



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BOXBOROUGH, MA 01719
508-635-0424 (FAX) 508-635-0266

August 27, 1997

Mr. Gary Hahn
Ecology & Environment, Inc.
4493 Walden Avenue
Lancaster, NY 14086

RE: 9701.957 (GTX-1557)

Dear Mr. Hahn:

Enclosed are the test results you requested for the above referenced project. We received the following two soil samples from you on August 22, 1997: MW9S-20 and MW8S-20. GeoTesting Express performed one sieve analysis (ASTM D 422) on sample MW8S-20 and one sieve and hydrometer analysis (ASTM D 422) on sample MW9S-20. Sample MW8S-20 contained less than 10% fines (material passing #200 sieve) therefore the hydrometer portion of the analysis was not required.

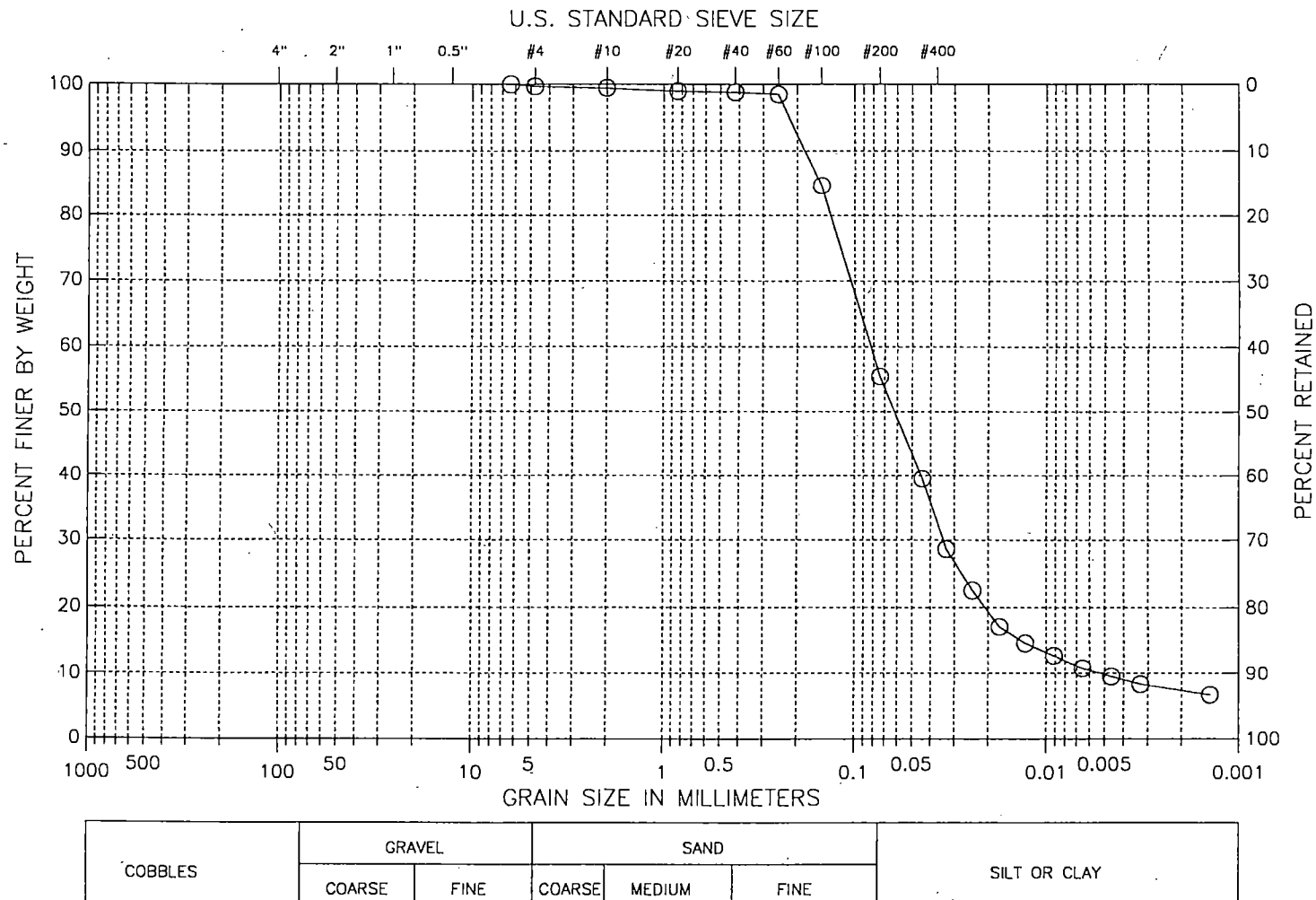
The results presented in this report apply only to the items tested. This report shall not be reproduced except in full, without written approval from GeoTesting Express. The remainder of these samples will be retained for a period of sixty days and will then be discarded unless otherwise notified by you. Please call me directly if you have any questions or require additional information. Thank you for this opportunity to provide your firm with physical properties testing of soils. We look forward to working with you in the future.

Respectfully yours;

Gary T. Torosian
Laboratory Manager

Boring No. : ---
 Sample No.: MW9S-20
 Test Method ASTM D 422
 Filename : MW9S20

Project : 9701.957
 Project No.: GTX-1557
 Location: ---
 Date : Wed Aug 27 1997



Classification :

Remarks :

Visual Description :

Moist, dark olive brown sandy clay with silt

GEOTECHNICAL LABORATORY TEST DATA

Project : 9701.957
 Project No. : GTX-1557
 Boring No. : ---
 Sample No. : MW9S-20
 Location : ---
 Soil Description : Moist, dark olive brown sandy clay with silt
 Remarks : ---

Filename : MW9S20
 Elevation : ---
 Tested by : kjs
 Checked by : gtt

Depth : ---
 Test Date : 08/22/97
 Test Method : ASTM D 422

HYDROMETER

Hydrometer ID : dist125
 Weight of air-dried soil = 71.48 gm
 Specific Gravity = 2.65

Hydrosopic Moisture Content :

Weight of Wet Soil = 0 gm
 Weight of Dry Soil = 0 gm
 Moisture Content = 0

Elapsed Time (min)	Reading	Temperature (deg. C)	Corrected Reading	Particle Size (mm)	Percent Finer (%)	Adjusted Particle Size
1.00	32.10	22.00	28.36	0.044	40	0.044
2.00	24.30	22.00	20.56	0.033	29	0.033
4.00	19.90	22.00	16.16	0.024	23	0.024
8.00	16.00	22.00	12.26	0.017	17	0.017
15.00	14.20	22.00	10.46	0.013	15	0.013
30.00	12.80	22.20	9.11	0.009	13	0.009
60.00	11.40	22.20	7.71	0.007	11	0.007
120.00	10.50	22.20	6.81	0.005	9	0.005
240.00	9.60	22.50	5.97	0.003	8	0.003
1362.00	9.00	20.30	4.80	0.001	7	0.001

Sieve Mesh	Sieve Openings		FINE SIEVE SET		Percent Finer (%)
	Inches	Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	
0.25"	0.250	6.35	0.00	0.00	100
#4	0.187	4.75	0.22	0.22	100
#10	0.079	2.00	0.18	0.40	99
#20	0.033	0.84	0.33	0.73	99
#40	0.017	0.42	0.13	0.86	99
#60	0.010	0.25	0.23	1.09	98
#100	0.006	0.15	10.01	11.10	85
#200	0.003	0.07	20.90	32.00	55
Pan			39.88	71.88	0

Total Dry Weight of Sample = 81.05

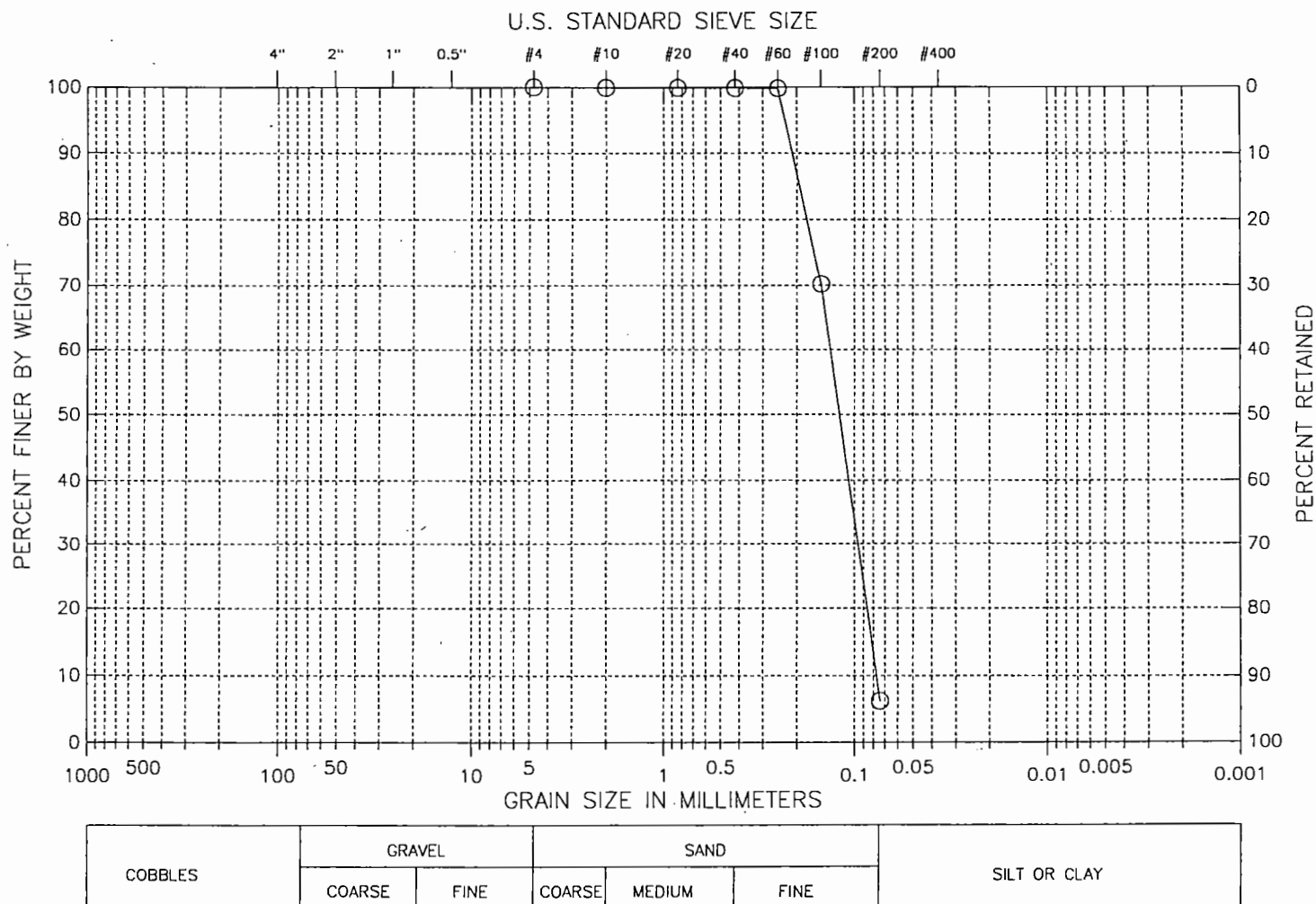
D85 : 0.1515 mm
 D60 : 0.0825 mm
 D50 : 0.0620 mm
 D30 : 0.0343 mm
 D15 : 0.0135 mm
 D10 : 0.0053 mm

Soil Classification

ASTM Group Symbol : N/A
 ASTM Group Name : N/A
 AASHTO Group Symbol : A-4(0)
 AASHTO Group Name : Silty Soils

Boring No. : ---
 Sample No.: MW8S-20
 Test Method ASTM D 422
 Filename : MW8S20

Project : 9701.957
 Project No.: GTX-1557
 Location: ---
 Date : Wed Aug 27 1997



Classification :

Visual Description :

Moist, dark grayish brown sand with some silt

Remarks :

Hydrometer not required, fines < 10%

GEOTECHNICAL LABORATORY TEST DATA

Project : 9701.957
Project No. : GTX-1557
Boring No. : ---
Sample No. : MW8S-20
Location : ---
Soil Description : Moist, dark grayish brown sand with some silt
Remarks : Hydrometer not required, fines < 10%

Filename : MW8S20
Elevation : ---
Tested by : kjs
Checked by : gtt
Depth : ---
Test Date : 08/22/97
Test Method : ASTM D 422

Sieve Mesh	Sieve Openings		FINE SIEVE SET		Percent Finer (%)
	Inches	Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	
-----	-----	-----	-----	-----	-----
#4	0.187	4.75	0.00	0.00	100
#10	0.079	2.00	0.10	0.10	100
#20	0.033	0.84	0.01	0.11	100
#40	0.017	0.42	0.02	0.13	100
#60	0.010	0.25	0.04	0.17	100
#100	0.006	0.15	22.68	22.85	70
#200	0.003	0.07	48.99	71.84	6
Pan			4.79	76.63	0

Total Dry Weight of Sample = 85.77

D85 : 0.1931 mm
D60 : 0.1333 mm
D50 : 0.1195 mm
D30 : 0.0960 mm
D15 : 0.0814 mm
D10 : 0.0771 mm

Soil Classification

ASTM Group Symbol : N/A
ASTM Group Name : N/A
AASHTO Group Symbol : A-3(0)
AASHTO Group Name : Fine Sand



Streamlined Risk Evaluation Supporting Documentation



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I1

Streamlined Human Health Risk Evaluation—Data Evaluation Summary Tables, Exposure Parameter Supporting Information and Detailed Risk Estimate Tables

Table I-1

DATA EVALUATION SUMMARY FOR CHEMICALS DETECTED IN SURFACE SOIL
JENNISON-WRIGHT SITE
GRANITE CITY, ILLINOIS

Compound/Analyte	Frequency of Detection	Concentration Detected (mg/kg)			Calculated Soil Background Concentration (mg/kg)	FOE	PRG for Residential Inhalation of Contaminants from Soil (mg/kg)	FOE	PRG for Industrial/ Commercial Ingestion of Soil (mg/kg)	FOE	PRG for Industrial/ Commercial Inhalation of Contaminants from Soil (mg/kg)	FOE	PRG for Construction Worker Ingestion of Soil (mg/kg)	FOE	PRG for Construction Worker Inhalation of Contaminants from Soil (mg/kg)	FOE
		Minimum	Average	Maximum												
Inorganics																
Aluminum	27/27	4690	10569.07	26100	12261	7/27	--	NA	--	NA	--	NA	--	NA	--	NA
Antimony	23/27	0.35	1.97	9.5	16	0/27	--	NA	820	0/27	--	NA	82	0/27	--	NA
Arsenic	26/27	2.9	6.94	15	12	1/27	750	0/27	3	25/27	1200	0/27	61	0/27	25000	0/27
Barium	27/27	76.2	174.97	256	251	1/27	690000	0/27	140000	0/27	910000	0/27	14000	0/27	870000	0/27
Beryllium	26/27	0.4	1.68	5.2	0.82	16/27	1300	0/27	1	11/27	2100	0/27	29	0/27	44000	0/27
Cadmium	22/27	0.3	2.06	5.1	3	6/27	1800	0/27	2000	0/27	2800	0/27	200	0/27	59000	0/27
Calcium	27/27	2570	68297.22	177000	20816	20/27	--	NA	--	NA	--	NA	--	NA	--	NA
Chromium	27/27	9.6	133.79	1270	27	16/27	270	3/27	10000	0/27	420	2/27	4100	0/27	8800	0/27
Cobalt	27/27	1.5	4.68	8.2	8	1/27	--	NA	120000	0/27	--	NA	12000	0/27	--	NA
Copper	27/27	11.5	47.74	168	43	13/27	--	NA	82000	0/27	--	NA	8200	0/27	--	NA
Iron	27/27	12000	32657.41	132000	19888	20/27	--	NA	--	NA	--	NA	--	NA	--	NA
Lead	27/27	13	160.82	581	--	NA	--	NA	400	2/27	--	NA	400	2/27	--	NA
Magnesium	27/27	1700	12979.81	46000	11082	11/27	--	NA	--	NA	--	NA	--	NA	--	NA
Manganese	27/27	294	3618.02	24700	581	22/27	69000	0/27	96000	0/27	91000	0/27	9600	2/27	8700	2/27
Mercury	14/27	0.06	0.16	0.4	0.18	7/27	10	0/27	610	0/27	540000	0/27	61	0/27	52000	0/27
Nickel	27/27	5.4	15.29	28.4	21	5/27	13000	0/27	41000	0/27	21000	0/27	4100	0/27	440000	0/27
Potassium	27/27	500	1477.30	2660	2804	0/27	--	NA	--	NA	--	NA	--	NA	--	NA
Selenium	11/27	0.9	1.94	4.5	2	2/27	--	NA	10000	0/27	--	NA	1000	0/27	--	NA
Silver	13/27	0.2	0.42	1	--	NA	--	NA	10000	0/27	--	NA	1000	0/27	--	NA
Sodium	27/27	212	786.87	2200	292	22/27	--	NA	--	NA	--	NA	--	NA	--	NA
Thallium	21/27	0.6	1.78	3.1	0.73	20/27	--	NA	160	0/27	--	NA	160	0/27	--	NA
Vanadium	27/27	16	127.70	656	36	18/27	--	NA	14000	0/27	--	NA	1400	0/27	--	NA
Zinc	27/27	60.3	357.58	1340	305	14/27	--	NA	610000	0/27	--	NA	61000	0/27	--	NA
Cyanide	26/27	0.2	2.06	9.65	NA	NA	--	NA	41000	0/27	--	NA	4100	0/27	--	NA
Organics																
TCDD-TEF	11/11	0.00017	0.02	0.066	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
2-Butanone	1/27	0.001	0.001	0.001	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Acetone	4/26	0.005	0.007	0.009	NA	NA	100000	0/26	200000	0/26	100000	0/26	200000	0/26	100000	0/26
Benzene	1/27	0.002	0.002	0.002	NA	NA	0.8	0/1	200	0/1	1.5	0/1	4300	0/1	2.1	0/1
Carbon Disulfide	2/27	0.001	0.002	0.002	NA	NA	720	0/2	200000	0/2	720	0/2	20000	0/2	9	0/2
Chloromethane	1/27	0.004	0.004	0.004	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Ethylbenzene	3/26	0.0015	0.33	1	NA	NA	400	0/26	200000	0/26	400	0/26	20000	0/26	58	0/26
Methylene Chloride	16/24	0.001	0.002	0.005	NA	NA	13	0/24	760	0/24	24	0/24	12000	0/24	34	0/24
Naphthalene	23/92	0.076	213.80	3300	NA	NA	--	NA	82000	0/92	--	NA	8200	0/92	--	NA
Styrene	3/26	0.001	0.29	0.86	NA	NA	1500	0/26	410000	0/26	1500	0/26	41000	0/26	430	0/26
Toluene	23/27	0.001	0.05	0.88	NA	NA	650	0/27	410000	0/27	650	0/27	410000	0/27	42	0/27
Xylene (total)	5/27	0.002	0.62	3	NA	NA	410	0/27	1000000	0/27	410	0/27	410000	0/27	410	0/27
1-Methylnaphthalene	20/65	16	447.33	3100	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
2,4-Dimethylphenol	5/21	0.15	1.26	4.7	NA	NA	--	NA	41000	0/21	--	NA	41000	0/21	--	NA
2-Methylnaphthalene	32/92	0.052	274.22	4600	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
2-Methylphenol	1/27	0.042	0.04	0.042	NA	NA	--	NA	100000	0/1	--	NA	100000	0/1	--	NA
4-Methylphenol	5/19	0.17	0.80	2.2	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Acenaphthene	44/92	0.038	555.50	10000	NA	NA	--	NA	120000	0/92	--	NA	120000	0/92	--	NA
Acenaphthylene	38/92	0.12	56.41	610	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Anthracene	51/92	0.12	501.62	12000	NA	NA	--	NA	610000	0/92	--	NA	610000	0/92	--	NA

Table I-1

DATA EVALUATION SUMMARY FOR CHEMICALS DETECTED IN SURFACE SOIL
JENNISON-WRIGHT SITE
GRANITE CITY, ILLINOIS

Compound/Analyte	Frequency of Detection	Concentration Detected (mg/kg)			Calculated Soil Background Concentration (mg/kg)	FOE	PRG for Residential Inhalation of Contaminants from Soil (mg/kg)	FOE	PRG for Industrial/ Commercial Ingestion of Soil (mg/kg)	FOE	PRG for Industrial/ Commercial Inhalation of Contaminants from Soil (mg/kg)	FOE	PRG for Construction Worker Ingestion of Soil (mg/kg)	FOE	PRG for Construction Worker Inhalation of Contaminants from Soil (mg/kg)	FOE
		Minimum	Average	Maximum												
Benzo[a]anthracene	81/92	0.19	217.97	7000	NA	NA	--	NA	8	48/92	--	NA	170	8/92	--	NA
Benzo[a]pyrene	89/92	0.34	93.71	2800	NA	NA	--	NA	0.8	86/92	--	NA	17	46/92	--	NA
Benzo[b]fluoranthene	89/92	0.54	113.18	2900	NA	NA	--	NA	8	67/92	--	NA	170	10/92	--	NA
Benzo[g,h,i]perylene	86/92	0.43	46.55	800	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Benzo[k]fluoranthene	87/92	0.41	99.80	3100	NA	NA	--	NA	78	13/92	--	NA	1700	2/92	--	NA
bis(2-Ethylhexyl)phthalate	1/19	3.4	3.40	3.4	NA	NA	31000	0/19	410	0/19	31000	0/19	4100	0/19	31000	0/19
Butylbenzylphthalate	1/27	0.075	0.08	0.075	NA	NA	930	0/1	410000	0/1	930	0/1	410000	0/1	930	0/1
Carbazole	24/27	0.126	469.13	5600	NA	NA	--	NA	290	2/27	--	NA	6200	0/27	--	NA
Chrysene	87/92	0.32	237.16	7400	NA	NA	--	NA	780	4/92	--	NA	17000	0/92	--	NA
Di-n-butylphthalate	1/19	2.8	2.80	2.8	NA	NA	2300	0/19	200000	0/19	2300	0/19	200000	0/19	2300	0/19
Dibenz[a,h]anthracene	63/92	0.15	27.38	350	NA	NA	--	NA	0.8	57/92	--	NA	17	20/92	--	NA
Dibenzofuran	23/27	0.032	617.70	8800	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Fluoranthene	81/92	0.175	1109.65	39000	NA	NA	--	NA	82000	0/92	--	NA	82000	0/92	--	NA
Fluorene	48/92	0.019	504.33	14000	NA	NA	--	NA	82000	0/92	--	NA	82000	0/92	--	NA
Indeno[1,2,3-cd]pyrene	86/92	0.4	44.42	930	NA	NA	--	NA	8	58/92	--	NA	170	3/92	--	NA
Pentachlorophenol	7/26	3.6	103.19	520	NA	NA	--	NA	24	5/26	--	NA	520	0/26	--	NA
Phenanthrene	69/92	0.058	1693.33	62000	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Phenol	1/27	0.33	0.33	0.33	NA	NA	--	NA	1000000	0/7	--	NA	120000	0/7	--	NA
Pyrene	79/92	0.28	776.94	27000	NA	NA	--	NA	61000	0/92	--	NA	61000	0/92	--	NA
4,4'-DDD	15/27	0.0048	0.08	0.88	NA	NA	--	NA	24	0/27	--	NA	520	0/27	--	NA
4,4'-DDE	3/26	0.019	0.03	0.036	NA	NA	--	NA	17	0/26	--	NA	370	0/26	--	NA
4,4'-DDT	18/27	0.0055	0.08	0.32	NA	NA	--	NA	17	0/27	1500	0/27	100	0/27	2100	0/27
Aldrin	8/27	0.0027	0.02	0.061	NA	NA	3	0/27	0.3	0/27	6.6	0/27	6.1	0/27	9.3	0/27
alpha-BHC	5/27	0.0032	0.01	0.024	NA	NA	0.8	0/27	0.9	0/27	1.5	0/27	20	0/27	2.1	0/27
alpha-Chlordane	9/27	0.00155	0.02	0.12	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
beta-BHC	3/27	0.003	0.01	0.021	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
delta-BHC	5/27	0.0023	0.03	0.088	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Dieldrin	16/27	0.004	0.02	0.22	NA	NA	1	0/27	0.4	0/27	2.2	0/27	7.8	0/27	3.1	0/27
Endosulfan I	8/26	0.0019	0.01	0.019	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Endosulfan II	17/27	0.0042	0.03	0.12	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Endosulfan sulfate	7/27	0.00885	0.05	0.19	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Endrin	21/27	0.0036	0.11	1	NA	NA	--	NA	610	0/27	--	NA	61	0/27	--	NA
Endrin aldehyde	12/27	0.0038	0.05	0.31	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Endrin ketone	22/27	0.0036	0.06	0.28	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
gamma-BHC (Lindane)	2/21	0.0026	0.003	0.0031	NA	NA	--	NA	4	0/21	--	NA	96	0/21	--	NA
gamma-Chlordane	8/26	0.0018	0.04	0.2255	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Heptachlor	5/22	0.00175	0.004	0.0074	NA	NA	0.1	0/22	1	0/22	11	0/22	28	0/22	16	0/22
Heptachlor epoxide	13/27	0.002	0.01	0.033	NA	NA	5	0/27	0.6	0/27	9.2	0/27	2.7	0/27	13	0/27
Methoxychlor	6/26	0.022	0.28	0.66	NA	NA	--	NA	10000	0/26	--	NA	1000	0/26	--	NA

PRGs were obtained from the Illinois Pollution Control Board's Tiered Approach to Cleanup Objectives, July 1997

-- A value does not exist or was not found for the chemical.

FOE - Frequency of exceedance

mg/kg - Milligrams per kilogram.

NA - Not applicable.

Table I-2

**DATA EVALUATION SUMMARY FOR CHEMICALS DETECTED IN SUBSURFACE SOIL
JENNISON-WRIGHT SITE
GRANITE CITY, ILLINOIS**

Compound/Analyte	Frequency of Detection	Concentration Detected (mg/kg)			Calculated Soil Background Concentration (mg/kg)	FOE	PRG for Residential Inhalation of Contaminants from Soil (mg/kg)	FOE	PRG for Industrial/ Commercial Ingestion of Soil (mg/kg)	FOE	PRG for Industrial/ Commercial Inhalation of Contaminants from Soil (mg/kg)	FOE	PRG for Construction Worker Ingestion of Soil (mg/kg)	FOE	PRG for Construction Worker Inhalation of Contaminants from Soil (mg/kg)	FOE
		Minimum	Average	Maximum												
Inorganics																
Aluminum	18/18	2480	5508	15,100	12261	1/18	--	NA	--	NA	--	NA	--	NA	--	NA
Antimony	6/13	0.5	0.65	0.8	16	0/13	--	NA	820	0/13	--	NA	82	0/13	--	NA
Arsenic	18/18	2.4	5.3	8.2	11.57	0/18	750	0/18	3	15/18	1200	0/18	61	0/18	25000	0/18
Barium	18/18	28.9	110.1	199	251	0/18	690000	0/18	140000	0/18	910000	0/18	14000	0/18	870000	0/18
Beryllium	12/18	0.24	0.41	0.7	0.82	0/18	1300	0/18	1	0/18	2100	0/18	29	0/18	44000	0/18
Calcium	18/18	1040	4648	17,000	20816	0/18	--	NA	--	NA	--	NA	--	NA	--	NA
Chromium	18/18	4.5	8.8	20	27	0/18	270	0/18	10000	0/18	420	0/18	4100	0/18	8800	0/18
Cobalt	18/18	3.2	5.8	8.4	8	2/18	--	NA	120000	0/18	--	NA	12000	0/18	--	NA
Copper	18/18	1.4	8.3	20.3	43	0/18	--	NA	82000	0/18	--	NA	8200	0/18	--	NA
Iron	18/18	5560	11060.0	19,400	19889	0/18	--	NA	--	NA	--	NA	--	NA	--	NA
Lead	18/18	3.6	8.3	13.8	--	NA	--	NA	400	0/18	--	NA	400	0/18	--	NA
Magnesium	18/18	1160	2900.6	6,390	11082	0/18	--	NA	--	NA	--	NA	--	NA	--	NA
Manganese	18/18	64.3	242.5	464	581	0/18	69000	0/18	96000	0/18	91000	0/18	9600	0/18	8700	0/18
Nickel	18/18	8.1	15.1	22.1	21	2/18	13000	0/18	41000	0/18	21000	0/18	4100	0/18	440000	0/18
Potassium	18/18	443	1034.8	2,480	2804	0/18	--	NA	--	NA	--	NA	--	NA	--	NA
Sodium	18/18	46.9	274.9	797	292	5/18	--	NA	--	NA	--	NA	--	NA	--	NA
Thallium	13/18	0.7	1.7	2.9	0.73	12/18	--	NA	160	0/18	--	NA	160	0/18	--	NA
Vanadium	18/18	7.8	16.3	35.6	36	0/18	--	NA	14000	0/18	--	NA	1400	0/18	--	NA
Zinc	18/18	17.9	44.8	140	305	0/18	--	NA	610000	0/18	--	NA	61000	0/18	--	NA
Cyanide	2/8	0.1	0.1	0.1	NA	NA	--	NA	41000	0/8	--	NA	4100	0/8	--	NA
Volatile Organics																
2-Hexanone	1/15	0.01	0.01	0.01	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Acetone	2/18	0.003	0.0035	0.004	NA	NA	100000	0/2	200000	0/2	100000	0/2	200000	0/2	100000	0/2
Benzene	2/18	3.9	4.1	4.2	NA	NA	0.8	2/18	200	0/18	1.5	2/18	4300	0/18	2.10	2/18
Chlorobenzene	1/18	0.002	0.002	0.002	NA	NA	130	0/1	41000	0/1	210	0/1	4100	0/1	1.30	0/1
Chloroform	1/19	0.001	0.001	0.001	NA	NA	0.3	0/1	940	0/1	0.54	0/1	2000	0/1	0.76	0/1
Chloromethane	3/18	0.002	0.00267	0.003	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Ethylbenzene	3/18	1.4	5.36667	7.4	NA	NA	400	0/18	200000	0/18	400	0/18	20000	0/18	58	0/18
Methylene Chloride	7/13	0.001	0.0041	0.008	NA	NA	13	0/13	760	0/13	24	0/13	12000	0/13	34	0/13
Naphthalene	19/61	0.061	657	6,700	NA	NA	--	NA	82000	0/61	--	NA	8200	0/61	--	NA
Styrene	2/18	4.4	4.4	4.5	NA	NA	1500	0/18	410000	0/18	1500	0/18	41000	0/18	430	0/18
Toluene	9/18	0.002	2.6	12	NA	NA	650	0/18	410000	0/18	650	0/18	410000	0/18	42	0/18
Xylene (total)	3/18	2.7	21	31	NA	NA	410	0/18	1000000	0/18	410	0/18	410000	0/18	410	0/18
Semivolatiles																
1-Methylnaphthalene	8/34	17	653.625	2,900	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
2,4-Dimethylphenol	2/27	22	24.5	27	NA	NA	--	NA	41000	0/27	--	NA	41000	0/27	--	NA
2-Methylnaphthalene	15/61	0.055	453.9	3,100	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
2-Methylphenol	2/26	10	11	12	NA	NA	--	NA	100000	0/26	--	NA	100000	0/26	--	NA
4-Methylphenol	2/27	31	35	39	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Acenaphthene	15/61	0.039	219	1,300	NA	NA	--	NA	120000	0/61	--	NA	120000	0/61	--	NA
Acenaphthylene	9/61	0.022	35	103.75	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Anthracene	16/61	0.044	59	250	NA	NA	--	NA	610000	0/61	--	NA	610000	0/61	--	NA
Benzo[a]anthracene	18/61	0.023	61	270	NA	NA	--	NA	8	11/61	--	NA	170	3/61	--	NA
Benzo[a]pyrene	17/61	0.022	30	100	NA	NA	--	NA	0.8	12/61	--	NA	17	7/61	--	NA
Benzo[b]fluoranthene	18/61	0.043	33	140	NA	NA	--	NA	8	9/61	--	NA	170	0/61	--	NA
Benzo[g,h,i]perylene	14/61	0.034	11	37	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Benzo[k]fluoranthene	14/61	0.095	20	72	NA	NA	--	NA	78	0/61	--	NA	1700	0/61	--	NA
bis(2-Ethylhexyl)phthalate	1/18	0.073	0.073	0.073	NA	NA	31000	0/1	410	0/1	31000	0/1	4100	0/1	31000	0/1
Carbazole	4/27	0.040	57.5	200	NA	NA	--	NA	290	0/27	--	NA	6200	0/27	--	NA

Table I-2

**DATA EVALUATION SUMMARY FOR CHEMICALS DETECTED IN SUBSURFACE SOIL
JENNISON-WRIGHT SITE
GRANITE CITY, ILLINOIS**

Compound/Analyte	Frequency of Detection	Concentration Detected (mg/kg)			Calculated Soil Background Concentration (mg/kg)	FOE	PRG for Residential Inhalation of Contaminants from Soil (mg/kg)	FOE	PRG for Industrial/ Commercial Ingestion of Soil (mg/kg)	FOE	PRG for Industrial/ Commercial Inhalation of Contaminants from Soil (mg/kg)	FOE	PRG for Construction Worker Ingestion of Soil (mg/kg)	FOE	PRG for Construction Worker Inhalation of Contaminants from Soil (mg/kg)	FOE
		Minimum	Average	Maximum												
Chrysene	19/61	0.031	50	290	NA	NA	--	NA	780	0/61	--	NA	17000	0/61	--	NA
Di-n-butylphthalate	5/27	0.027	150	750	NA	NA	2300	0/27	200000	0/27	2300	0/27	200000	0/27	2300	0/27
Dibenz[a,h]anthracene	10/61	0.032	7.7	25	NA	NA	--	NA	0.8	7/61	--	NA	17	1/61	--	NA
Dibenzofuran	8/27	0.041	111	410	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Fluoranthene	22/61	0.026	196	1,600	NA	NA	--	NA	82000	0/61	--	NA	82000	0/61	--	NA
Fluorene	15/61	0.038	33491	500,000	NA	NA	--	NA	82000	1/61	--	NA	82000	1/61	--	NA
Indeno[1,2,3-cd]pyrene	16/61	0.03	43759	700,000	NA	NA	--	NA	8	7/61	--	NA	170	1/61	--	NA
Pentachlorophenol	6/27	0.024	25.1	66	NA	NA	--	NA	24	2/27	--	NA	520	0/27	--	NA
Phenanthrene	26/61	0.037	173	1,100	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Phenol	2/26	6.9	7.7	8.5	NA	NA	--	NA	1000000	0/26	--	NA	120000	0/26	--	NA
Pyrene	19/61	0.021	143.95	880	NA	NA	--	NA	61000	0/61	--	NA	61000	0/61	--	NA
4,4'-DDD	3/18	0.0092	0.027	0.044	NA	NA	--	NA	24	0/18	--	NA	520	0/18	--	NA
4,4'-DDE	2/18	0.0041	0.0	0.044	NA	NA	--	NA	17	0/18	--	NA	370	0/18	--	NA
Aldrin	1/16	0.0067	0.0067	0.0067	NA	NA	3	0/16	0.3	0/16	6.6	0/16	6.1	0/16	9.3	0/16
Dieldrin	4/18	0.0074	0.075	0.2	NA	NA	1	0/18	0.4	0/18	2.2	0/18	7.8	0/18	3.1	0/18
Endosulfan I	1/16	0.0025	0.0025	0.0025	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Endrin	3/18	0.011	0.022	0.029	NA	NA	--	NA	610	0/18	--	NA	61	0/18	--	NA
Endrin ketone	4/18	0.0091	0.061	0.18	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
gamma-Chlordane	3/17	0.004	0.0045	0.0055	NA	NA	--	NA	--	NA	--	NA	--	NA	--	NA
Methoxychlor	2/18	0.022	0.206	0.39	NA	NA	--	NA	10000	0/18	--	NA	1000	0/18	--	NA

PRGs were obtained from the Illinois Pollution Control Board's Tiered Approach to Cleanup Objectives, July 1997

-- A value does not exist or was not found for the chemical.

FOE - Frequency of exceedance

mg/kg - Milligrams per kilogram.

NA - Not applicable.

Table I-3
BACKGROUND SAMPLE INFORMATION
JENNISON-WRIGHT SITE
GRANITE CITY, ILLINOIS

Analyte	Sample Number															
	SS100	SS101	SS102	SS103	X101	X210	X211	X212	X213	X214	X215	X216	X217	X201	X202	X203
Arsenic	8.1	7.9	7.3	8.2	7.8	9.2	6.7	8.6	6.8	12.1	12.1	7.5	6.3	10.5	10.1	15.5
Lead	40	12	39	58	15.3	263	266	192	219	645	282	174	107	364	250	398
Selenium	0.84	0.81	2.3	3.5	0.3					0.42						
Thallium	1	1.9	0.8	0.78	0.25	0.37	0.38	0.42	0.38	0.39	0.32	0.28	--	0.31	--	0.37
Aluminum	8700	6500	8400	6900	5550	16100	10800	13500	8790	10100	8130	8360	10600	13300	12800	17500
Antimony					3.2			13.7			12.2	15.6			14.9	
Barium	120	92	430	460	93.7	330	281	201	150	203	118	154	170	295	192	239
Beryllium					0.4	0.85	0.82	0.75	0.49	0.85	0.46	0.54	0.67	0.89	0.88	0.98
Cadmium			1.1	1.1	0.05	2.40	1.90	2.60	0.98	2.70	1.80	1.30	1.40	2.20	2.00	3.40
Calcium	38000	39000	7700	7900	44200	6390	7150	12800	16000	4140	39100	5110	9420	5840	11800	5620
Chromium	15	13	15	13	9.2	28.4	19.8	21.8	17.3	22.5	48.1	15.4	18.7	24.9	27.8	29.7
Cobalt	6.8	6.1	6.7	6.6	6.2	9.2	6.3	7.4	5.9	7.1	5.8	5.6	6.8	7.9	7.3	9.4
Copper	31	15	17	17	23.3	38.9	84.1	30.2	23.2	37.1	26	20.5	25.4	42.8	34.6	95.5
Iron	15000	14000	16000	15000	14100	21700	18600	18500	14800	22800	15700	15500	22100	20400	20200	23200
Magnesium	16000	21000	4700	4500	24600	4510	2790	6220	8440	2290	20100	2580	4860	3630	3770	4490
Manganese	550	500	530	550	564	649	341	501	421	394	574	312	445	307	448	700
Nickel	18	14	17	16	16.1	24.1	19.2	19.3	15.3	19.4	13.5	15.2	19.5	19.2	23.2	26.1
Potassium	2200	1300	1400	1200	1020	4100	2390	3350	2070	2630	1260	2260	2680	3190	3130	3220
Sodium		1200	290	140	102	115	233	130	117	171	151	125	140	170	233	116
Vanadium	30	25	26	22	18.1	41.2	28.7	34.9	26.3	33.2	27	22.6	30.2	34.5	35	47
Zinc	200	55	220	220	53.6	386	412	264	163	324	234	185	214	384	265	360
Mercury	0.02		0.02		0.05	0.26	0.21	0.15	0.08	0.12	0.29	0.12	0.12	0.34	0.12	0.19

Note: All results are reported in milligrams per kilogram (mg/kg)

Samples with an "X" in the Sample designation were collected by IEPA

Table I-3
BACKGROUND SAMPLE INFORMATION
JENNISON-WRIGHT SITE
GRANITE CITY, ILLINOIS

Analyte	Sample Number						Summary Statistics							
	X204	X205	X206	X207	X208	X209	Min	Max	Median	n	\bar{x}	s	t	UCL
Arsenic	21.3	13.1	5.9	4.5	5.1	22.1	4.5	22.10	8.15	22	9.85	4.683685	1.721	11.57
Lead	674	149	65.9	67.9	129	4190	12	4190.00	183	22	390.91	867.90832	1.721	709.37
Selenium							0.3	3.50	0.825	6	1.36	1.2683283	2.015	2.41
Thallium	0.33	0.53	--	--	--	--	0.25	1.90	0.38	16	0.55	0.4185446	1.753	0.73
Aluminum	12900	17300	9830	10100	9580	15900	5550	17500.00	10100	22	10983.64	3480.9174	1.721	12260.85
Antimony						14.7	3.2	15.60	14.2	6	12.38	4.6507705	2.015	16.21
Barium	216	218	149	153	113	324	92	460.00	196.5	22	213.71	102.44215	1.721	251.30
Beryllium	1	0.87	0.43	0.49	0.41	1.2	0.4	1.20	0.785	18	0.72	0.2411953	1.74	0.82
Cadmium	5.30	1.80		0.64	1.40	4.50	0.05	5.30	1.8	19	2.03	1.2855047	1.734	2.54
Calcium	7830	5730	22100	22100	25200	9740	4140	44200.00	9580	22	16039.55	13018.042	1.721	20816.10
Chromium	38.9	24.5	16.3	17.1	18.2	49.5	9.2	49.50	19.25	22	22.91	10.756407	1.721	26.86
Cobalt	8.2	9.2	7.2	7.1	8.7	9.9	5.6	9.90	7.1	22	7.34	1.2666211	1.721	7.80
Copper	52.3	28	20.2	19.7	23.3	65.3	15	95.50	27	22	35.02	21.552431	1.721	42.93
Iron	21900	21500	15300	15400	14100	29100	14000	29100.00	17250	22	18404.55	4042.0972	1.721	19887.67
Magnesium	3300	5080	13200	12900	15200	4480	2290	24600.00	4780	22	8574.55	6833.3243	1.721	11081.82
Manganese	602	586	747	738	481	756	307	756.00	540	22	531.64	134.17918	1.721	580.87
Nickel	26.7	21.5	15.9	18.1	15.8	26.8	13.5	26.80	18.65	22	19.09	4.0667403	1.721	20.58
Potassium	2700	3680	2310	2520	2260	3740	1020	4100.00	2455	22	2482.27	878.11992	1.721	2804.47
Sodium	189	112	113	118	155	174	102	1200.00	140	21	204.48	233.16917	1.725	292.25
Vanadium	46	44.7	30.5	30.2	30.2	52.9	18.1	52.90	30.2	22	32.55	8.925604	1.721	35.83
Zinc	524	206	108	108	137	572	53.6	572.00	220	22	254.30	139.4416	1.721	305.46
Mercury	0.14	0.07				0.10	0.02	0.34	0.12	17	0.14	0.0911648	1.746	0.18

Note: All results are reported in milligrams per kilogram (mg/kg)

Samples with an "X" in the Sample designation were collected by IEPA

n = Number of samples

\bar{x} = Sample mean

s = Standard deviation of samples

t = Student-t statistic

UCL = 95% Upper confidence limit on the mean

Table 1-4

**DATA EVALUATION SUMMARY FOR CHEMICALS DETECTED IN GROUNDWATER
JENNISON-WRIGHT SITE
GRANITE CITY, ILLINOIS**

Compound/Analyte	Frequency of Detection	Minimum Detected Concentration (mg/l)	Average Detected Concentration (mg/l)	Maximum Detected Concentration (mg/l)	MCL (mg/l)	Frequency of Exceedance	Region 9 RBC for Tap Water (mg/l)	Frequency of Exceedance	Class I Groundwater Objective (mg/l)	Frequency of Exceedance
Inorganics										
Aluminum	27/28	0.02	0.21	3	--	NA	36.5	0/28	--	NA
Antimony	4/28	0.0019	0.0023	0.003	0.006	0/28	0.015	0/28	0.006	0/28
Arsenic	9/28	0.002	0.0144	0.064	0.05	1/28	4.48E-05	9/28	0.05	1/28
Barium	28/28	0.077	0.28	1	2	0/28	2.6	0/28	2	0/28
Cadmium	17/28	0.0003	0.00053	0.001	0.005	0/28	0.018	0/28	0.005	0/28
Calcium	28/28	87.4	132.51	308	--	NA	--	NA	--	NA
Chromium	17/28	0.0011	0.0029	0.0083	--	NA	0.1825	0/28	0.1	0/28
Cobalt	13/28	0.0015	0.0050	0.0099	--	NA	2.19	0/28	1	0/28
Copper	25/28	0.0018	0.02	0.048	--	NA	1.4	0/28	0.65	0/28
Iron	28/28	0.0309	3.71	25	--	NA	--	NA	--	NA
Lead	24/28	0.0013	0.01	0.056	0.015	5/28	0.004	20/28	0.0075	5/28
Magnesium	28/28	18.9	36.38	70	--	NA	--	NA	--	NA
Manganese	28/28	0.0007	0.76	6	--	NA	1.7	3/28	0.15	18/28
Nickel	19/28	0.0051	0.02	0.049	0.14	0/28	0.73	0/28	0.10	0/28
Potassium	28/28	2.84	5.99	9.83	--	NA	--	NA	--	NA
Selenium	8/21	0.0024	0.01	0.021	0.05	0/21	0.18	0/21	0.05	0/21
Silver	1/28	0.0011	0.00	0.0011	--	NA	0.18	0/28	0.05	0/28
Sodium	28/28	10.3	29.03	101	--	NA	--	NA	--	NA
Thallium	3/28	0.00375	0.00	0.0044	0.002	3/28	--	NA	0.002	3/28
Vanadium	5/28	0.0013	0.00	0.009	--	NA	0.26	0/28	0.049	0/28
Zinc	10/28	0.0066	0.04	0.16	--	NA	10.95	0/28	5	0/28
Cyanide	1/28	0.0071	0.01	0.007	0.2	0/28	0.73	0/28	0.2	0/28
Volatile Organics										
1,1,1-Trichloroethane	1/26	0.019	0.02	0.019	0.2	0/26	0.79	0/26	0.2	0/26
1,2-Dichloroethane	2/26	0.003	0.01	0.012	0.005	1/26	0.00012	2/26	0.005	1/26
2-Butanone	1/28	0.059	0.06	0.059	--	NA	1.90	0/28	--	NA
4-Methyl-2-Pentanone	1/26	0.019	0.02	0.019	--	NA	0.16	0/26	--	NA
Acetone	5/28	0.002	0.03	0.089	--	NA	0.61	0/28	0.7	0/28
Benzene	4/28	0.009	1.90	7	0.005	4/28	0.00	4/28	0.005	4/28
Carbon Disulfide	1/24	0.002	0.00	0.002	--	NA	0.02	0/1	0.7	0/1
Chloroform	1/27	0.008	0.01	0.008	0.1	0/27	0.0002	1/27	2E-05	1/27
Ethylbenzene	5/28	0.002	0.18	0.8	0.7	1/28	1.3	0/28	0.7	1/28
Methylene Chloride	22/28	0.002	0.01	0.024	0.005	8/28	0.004	8/28	0.005	8/28
Naphthalene	8/60	0.0112	3.43	21	--	NA	0.24	5/60	0.025	6/60
Styrene	2/28	0.009	0.04	0.065	0.1	0/28	1.6	0/28	0.1	0/28

Table I-4

**DATA EVALUATION SUMMARY FOR CHEMICALS DETECTED IN GROUNDWATER
JENNISON-WRIGHT SITE
GRANITE CITY, ILLINOIS**

Compound/Analyte	Frequency of Detection	Minimum Detected Concentration (mg/l)	Average Detected Concentration (mg/l)	Maximum Detected Concentration (mg/l)	MCL (mg/l)	Frequency of Exceedance	Region 9 RBC for Tap Water (mg/l)	Frequency of Exceedance	Class I Groundwater Objective (mg/l)	Frequency of Exceedance
Tetrachloroethene	1/28	0.002	0.00	0.002	0.005	0/1	0.001082	1/1	0.005	0/1
Toluene	6/28	0.002	0.65	3	1	1/28	0.7	1/28	1	1/28
Trichloroethene	1/26	0.009	0.01	0.009	0.005	1/26	0.002	1/26	0.005	1/26
Xylene (total)	5/28	0.007	0.56	2	10	0/28	1.4	1/28	10	0/28
Semivolatile Organics										
1-Methylnaphthalene	4/36	0.009	0.16	1	--	NA		NA		NA
2,4-Dimethylphenol	2/38	0.001	7.50	15	--	NA	0.73	1/38	0.14	1/38
2-Chloronaphthalene	1/24	0.002	0.00	0.002	--	NA	0.49	0/1	--	NA
2-Methylnaphthalene	4/59	0.065	0.30	1	--	NA	--	NA	--	NA
2-Methylphenol	2/38	0.001	10.50	21	--	NA	1.8	1/38	0.35	1/38
4-Methylphenol	2/38	0.003	30.00	60	--	NA	0.18	1/38	--	NA
Acenaphthene	10/59	0.001	0.15	0.46	--	NA	0.365	1/59	0.42	1/59
Acenaphthylene	5/59	0.004	0.03	0.0525	--	NA	--	NA	--	NA
Anthracene	3/38	0.001	0.00	0.0040	--	NA	1.8	0/38	2.1	0/38
Benzo[a]anthracene	3/59	0.0029	0.07	0.19	--	NA	9.21E-05	3/59	0.00013	3/59
Benzo[a]pyrene	3/59	0.002	0.03	0.096	0.0002	3/59	9.21E-06	3/59	0.0002	3/59
Benzo[b]fluoranthene	4/59	0.002	0.05	0.18	--	NA	9.21E-05	4/59	0.00018	4/59
Benzo[g,h,i]perylene	1/59	0.18	0.18	0.18	--	NA	--	NA	--	NA
Benzo[k]fluoranthene	3/59	0.002	0.04	0.12	--	NA	0.0009	3/59	0.00017	3/59
bis(2-Ethylhexyl)phthalate	6/25	0.002	0.00	0.01	0.006	1/25	0.0048	1/25	0.006	1/25
Carbazole	4/27	0.002	0.04	0.15	--	NA	0.0034	3/27	--	NA
Chrysene	3/59	0.0044	0.07	0.19	--	NA	0.009	1/59	0.0015	3/59
Di-n-butylphthalate	1/24	0.0025	0.00	0.0025	--	NA	3.65	0/1	0.7	0/1
Dibenz[a,h]anthracene	1/59	0.13	0.13	0.13	--	NA	9.21E-06	1/59	0.0003	1/59
Dibenzofuran	4/27	0.037	0.12	0.25	--	NA	0.024	4/27	--	NA
Fluoranthene	5/59	0.005	0.12	0.53	--	NA	1.46	0/59	0.28	1/59
Fluorene	9/59	0.002	0.07	0.2	--	NA	0.24	0/59	0.28	0/59
Indeno[1,2,3-cd]pyrene	2/58	0.0019	0.02	0.03	--	NA	9.21E-05	2/58	0.00043	2/58
Pentachlorophenol	10/10	0.013	9.24	88	0.001	5/10	--	NA	--	NA
Pentachlorophenol	10/38	0.013	9.24	88	0.001	5/10	--	NA	--	NA
Pentachlorophenol	10/10	0.013	9.24	88	--	NA	0.00056	5/38	0.001	5/38
Pentachlorophenol	10/38	0.013	9.24	88	--	NA	0.00056	5/38	0.001	5/38
Phenanthrene	8/59	0.002	0.08	0.24	--	NA	--	NA	--	NA
Phenol	2/37	0.01	3.01	6	--	NA	21.9	0/37	0.1	1/37
Pyrene	5/59	0.003	0.10	0.5	--	NA	0.1825	1/59	0.21	1/59
alpha-BHC	1/28	0.00026	0.00	0.0003	--	NA	1.07E-05	1/28	3E-05	1/28

Table I-4

DATA EVALUATION SUMMARY FOR CHEMICALS DETECTED IN GROUNDWATER
JENNISON-WRIGHT SITE
GRANITE CITY, ILLINOIS

Compound/Analyte	Frequency of Detection	Minimum Detected Concentration (mg/l)	Average Detected Concentration (mg/l)	Maximum Detected Concentration (mg/l)	MCL (mg/l)	Frequency of Exceedance	Region 9 RBC for Tap Water (mg/l)	Frequency of Exceedance	Class I Groundwater Objective (mg/l)	Frequency of Exceedance
alpha-Chlordane	1/27	0.00017	0.00	0.0002	--	NA	--	NA	--	NA
Endosulfan I	1/27	0.00012	0.00	0.0001	--	NA	--	NA	--	NA
gamma-BHC (Lindane)	1/27	8.9E-05	0.00	0.00009	0.0002	0/27	5.17E-05	1/27	0.0002	0/27
Heptachlor	2/27	0.00013	0.00	0.0001	0.0004	0/27	1.49E-05	2/27	0.0004	0/27

-- = A value does not exist or was not found for the chemical.

mg/L - Milligrams per liter.

NA - Not applicable.

Table I-5

**CHEMICAL DERMAL AND GASTROINTESTINAL ABSORPTION FACTORS
JENNISON-WRIGHT SITE
GRANITE CITY, ILLINOIS**

Chemical	ABS	ABS Source	GIAF	GIAF Source
Acenaphthene	0.13	US EPA 1999	1	IPCB 1997
Benzo[a]anthracene	0.13	US EPA 1999	1	IPCB 1997
Benzene	0.03	Estimated based on IEPA 1999	1	IPCB 1997
Benzo[a]pyrene	0.13	US EPA 1999	1	IPCB 1997
Benzo[b]fluoranthene	0.13	US EPA 1999	1	IPCB 1997
Benzo[k]fluoranthene	0.13	US EPA 1999	1	IPCB 1997
Beryllium	0.01	US EPA 1999	0.005	HEAST 1997
Carbazole	0.1	US EPA 1999	1	IPCB 1997
Chromium	0.01	US EPA 1999	0.1	HEAST 1997
Chrysene	0.13	US EPA 1999	1	IPCB 1997
Dibenz[a,h]anthracene	0.13	US EPA 1999	1	IPCB 1997
2,4-Dimethylphenol	0.24	Extrapolated from PCP	1	IPCB 1997
alpha-Hexachlorocyclohexane	0.1	US EPA 1999	1	IPCB 1997
Indeno[1,2,3-cd]pyrene	0.13	US EPA 1999	1	IPCB 1997
Manganese (diet)	0.01	US EPA 1999	0.05	ATSDR 1997
Naphthalene	0.13	US EPA 1999	1	IPCB 1997
Pentachlorophenol	0.24	US EPA 1999	1	IPCB 1997
2,3,7,8-TCDD	0.03	US EPA 1999	0.55	US EPA 1994

ABS = Dermal absorption factor

GIAF = Gastrointestinal absorption factor

US EPA 1999: RAGS HHEM Supplemental Guidance, Dermal Risk Assessment Interim Guidance

ATSDR 1997: Agency for Toxic Substances and Disease Registry, Toxicological Profile

IPCB 1997: Tiered Approach to Cleanup Objectives

US EPA 1994: Estimating Exposure to Dioxin-like Compounds, Vol. III

IRIS - US EPA's Integrated Risk Information System Database

HEAST - Health Effects Assessment Summary Tables

Table I-6
SOIL-TO-AIR VOLATILIZATION FACTOR EQUATION

$$VF_s \text{ (m}^3\text{/kg)} = Q/C \times \frac{(3.14 \times DA \times T)^{1/2}}{(2 \times \text{rhob} \times DA)} \times 10^{-4} \text{ m}^2\text{/cm}^2$$

where:

$$DA = \frac{[(\Theta a^{10/3} \times DiH' + \Theta w^{10/3} Dw)/n^2]}{\text{rhob} \times K_d + \Theta w + \Theta a \times H'}$$

Variable	Description	Values used	
		Construction Scenarios*	Other Scenarios
VF _s	Volatization Factor (m ³ /kg)	Chemical Specific	Chemical Specific
Q/C	Inv. of the mean conc. at the ctr. of a 0.5-acre ² source (g/m ² -s per kg/m ³)	85.81	68.81
T	Exposure interval (s)	ED _c *31536000	ED _a *31536000 (adult) or ED _c *31536000 (child)
D _w	Diffusivity in water (cm ² /s)	Chemical Specific	Chemical Specific
Q _a	Air filled soil porosity (L _{air} /L _{soil})	0.28 or n - (w x rhob)	0.28 or n - (w x rhob)
Di	Diffusivity in air (cm ² /s)	Chemical Specific	Chemical Specific
n	Total soil porosity (L _{pore} /L _{soil})	0.43 (loam)	0.43 (loam)
w	Average soil moisture content (g _{water} /g _{soil} or cm ³ _{water} /g _{soil})	0.1	0.1
rhob	Dry soil bulk density (g/cm ³)	1.5	1.5
H'	Dimensionless Henry's Law Constant	H x 41	H x 41
Q _w	Water-filled soil porosity (L _{water} /L _{soil})	0.15 or w x rhob	0.15 or w x rhob
H	Henry's Law constant (atm-m ³ /mol)	Chemical Specific	Chemical Specific
K _d	Soil-water partition coefficient (cm ³ /g)	K _{oc} x f _{oc}	K _{oc} x f _{oc}
k _{oc}	Soil organic carbon/water partition coefficient (cm ³ /g)	Chemical Specific	Chemical Specific
f _{oc}	Fraction organic carbon content of soil (g/g)	0.006	0.006

Refer to Table I-7 for chemical-specific parameters used in the calculation of VF_s, and Table I-8 for calculated VF_s.

*Note: A factor of 10 was incorporated in the denominator of the VF equation for the construction scenarios to account for increased soil agitation.

Source: IPCB 1997

Table I-7

**CHEMICAL PROPERTIES USED IN CALCULATION OF VOLATILIZATION FACTOR
JENNISON-WRIGHT SITE
GRANITE CITY, ILLINOIS**

Chemical	MW	VP	H'	K _{oc}	Di,a	Di,w
Acenaphthene	154.2 ^a	0.00155 ^a	0.00636 ^f	7080 ^f	0.0421 ^f	7.69E-06 ^f
Benzene	78.11 ^c	95.2 ^c	0.228 ^f	58.9 ^f	0.088 ^f	9.8E-06 ^f
Benzo[a]anthracene	228.3 ^a	1.1E-07 ^a	0.000137 ^f	398000 ^f	0.051 ^f	9E-06 ^f
Benzo[a]pyrene	252.3 ^a	5.49E-09 ^a	4.63E-05 ^f	1020000 ^f	0.043 ^f	9E-06 ^f
Benzo[b]fluoranthene	252.3 ^a	5E-07 ^a	0.00455 ^f	1230000 ^f	0.0226 ^f	5.56E-06 ^f
Benzo[k]fluoranthene	252.3 ^a	9.59E-11 ^a	3.4E-05 ^f	1230000 ^f	0.0226 ^f	5.56E-06 ^f
Carbazole	167.2 ^d	400 ^d	6.26E-07 ^f	3390 ^f	0.039 ^f	7.03E-06 ^f
Chrysene	228.3 ^a	6.3E-09 ^a	0.00388 ^f	398000 ^f	0.0248 ^f	6.21E-06 ^f
Dibenz[a,h]anthracene	278.4 ^a	1E-10 ^a	6.03E-07 ^f	3800000 ^f	0.0202 ^f	5.18E-06 ^f
2,4-Dimethylphenol	122 ^c	0.098 ^c	8.2E-05 ^f	209 ^f	0.0584 ^f	8.69E-06 ^f
alpha-Hexachlorocyclohexane	290.8 ^a	2.5E-05 ^a	0.000435 ^f	1230 ^f	0.0142 ^f	7.34E-06 ^f
Indeno[1,2,3-cd]pyrene	276.3 ^a	1E-10 ^a	6.56E-05 ^f	3470000 ^f	0.019 ^f	5.66E-06 ^f
Naphthalene	128 ^c	0.085 ^c	0.0198 ^f	2000 ^f	0.059 ^f	7.5E-06 ^f
Pentachlorophenol	266.5 ^c	0.000111 ^c	1E-06 ^f	592 ^f	0.056 ^f	6.1E-06 ^f
2,3,7,8-TCDD	321.9 ^a	7.2E-10 ^a	0.000677 ^e	4571000 ^a	0.0126 ^g	6.81E-06 ^g

Sources

^a Montgomery, J.H., Welkom, L.M., Groundwater Chemicals Desk Reference, Lewis Publishers, 1990, Vol. I

^b Montgomery, J.H., Groundwater Chemicals Desk Reference, Lewis Publishers, 1991, Vol II

^c USEPA, Database of Chemical Properties for SARA, Section 313 Chemicals, 1989

^d Lewis Jr., R.J., Sax's Dangerous Properties of Industrial Materials 1992
(8th Edition), Van, Nostrand, & Reinhold, 1992, Vol. 1-3

^e USEPA, Estimating Exposure to Dioxin-Like Compounds Volume III: Site-specific Assessment Procedures,
EPA/600/6-88/005Cc, External Review Draft - June 1994, Office of Research and Development, 1994

^f Illinois Pollution Control Board: Tiered Approach to Cleanup Objectives, Title 35, Part 742, Appendix C,
Table E: Default Physical and Chemical Parameters, 1997

^g USEPA Chem 8 Database, Research Triangle Park, 1994

Table I-8

**CALCULATED VOLATILIZATION FACTORS
JENNISON-WRIGHT SITE
GRANITE CITY, ILLINOIS**

Chemical	Volatilization Factors					
	Current Site Visitor	Current/Future Nearby Resident (Age Integrated)	Current/Future Nearby Resident (Child)	Future Site Worker	Future Construction Worker	Future Nearby Residents During Construction ^a
Acenaphthene	1.11E+05	2.15E+05	9.62E+04	2.45E+05	1.92E+03	1.54E+03
alpha-BHC	2.87E+05	5.57E+05	2.49E+05	6.34E+05	4.97E+03	3.99E+03
Benzene	NA	NA	NA	3.06E+03	2.40E+01	1.93E+01
Benzo[a]anthracene	4.80E+06	9.30E+06	4.16E+06	1.06E+07	8.31E+04	6.66E+04
Benzo[a]pyrene	1.25E+07	2.41E+07	1.08E+07	2.75E+07	2.16E+05	1.73E+05
Benzo[b]fluoranthene	2.36E+06	4.56E+06	2.04E+06	5.20E+06	4.08E+04	3.27E+04
Benzo[k]fluoranthene	2.00E+07	3.88E+07	1.74E+07	4.42E+07	3.47E+05	2.78E+05
Carbazole	1.36E+06	2.63E+06	1.18E+06	2.99E+06	2.35E+04	1.88E+04
Chrysene	1.39E+06	2.68E+06	1.20E+06	3.05E+06	2.40E+04	1.92E+04
Dibenz[a,h]anthracene	5.31E+07	1.03E+08	4.60E+07	1.17E+08	9.18E+05	7.36E+05
Indeno[1,2,3-cd]pyrene	2.90E+07	5.62E+07	2.52E+07	6.40E+07	5.03E+05	4.03E+05
Naphthalene	2.84E+04	5.50E+04	2.46E+04	6.26E+04	4.91E+02	3.94E+02
Pentachlorophenol	6.02E+05	1.17E+06	5.22E+05	1.33E+06	1.04E+04	8.36E+03
TCDD-TEF	1.51E+07	2.93E+07	1.31E+07	3.33E+07	2.62E+05	2.10E+05

^a Calculated VF for the age integrated receptor and the child receptor were equivalent.

NA = Not applicable (benzene was not identified as a COPC in surface soil).

Table I-9 PARTICULATE EMISSION FACTOR EQUATION		
$PEF = Q/C \times \frac{3600 \text{ s/h}}{0.036 \times (1 - V) \times (U_m/U_t)^3 \times F(x)}$		
Variable	Description	Value Used
PEF	Particulate emission factor (m ³ /kg)	
	Non-occupational/non-construction	7.31E+08
	Occupational/non-construction	6.91E+08
	Construction*	1.24E+08
Q/C	Inv. of the mean conc. at the ctr. of a 0.5-acre ² source (g/m ² -s per kg/m ³)	
	Non-occupational/non-construction	90.8
	Occupational/non-construction	85.81
V	Fraction of vegetative cover (unitless)	0.1
U _m	Mean annual windspeed (m/s)	4.69
U _t	Equivalent threshold value of windspeed at 7 m (m/s)	11.32
F(x)	Function dependent on U _m /U _t derived using Cowherd (1985) (unitless)	0.194

*Note: For scenarios involving construction excavation, a default PEF of 1.24 x 10⁸ was used in accordance with TACO guidance.

Source: IPCB 1997

Table I-10

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 1 - CURRENT SITE VISITORS**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Oral RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Oral SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Adolescent RME Case							
Ingestion of Soil or Solids							
Acenaphthene	4.9E+02	6.0E-02	1.4E-04	2.3E-03	NA	--	--
alpha-BHC	9.2E-03	NA	2.6E-09	--	6.3E+00	3.0E-10	1.9E-09
Benzo[a]anthracene	3.6E+02	NA	1.0E-04	--	7.3E-01	1.2E-05	8.5E-06
Benzo[a]pyrene	1.5E+02	NA	4.2E-05	--	7.3E+00	4.8E-06	3.5E-05
Benzo[b]fluoranthene	1.7E+02	NA	4.8E-05	--	7.3E-01	5.5E-06	4.0E-06
Benzo[k]fluoranthene	1.6E+02	NA	4.5E-05	--	7.3E-02	5.1E-06	3.8E-07
Beryllium	2.7E+00	2.0E-03	7.6E-07	3.8E-04	NA	8.7E-08	--
Carbazole	4.5E+03	NA	1.3E-03	--	2.0E-02	1.4E-04	2.9E-06
Chromium (III)	2.1E+02	1.5E+00	5.8E-05	3.9E-05	NA	--	--
Chromium (VI)	4.1E+01	3.0E-03	1.2E-05	3.9E-03	NA	1.3E-06	--
Chrysene	4.1E+02	NA	1.1E-04	--	7.3E-03	1.3E-05	9.6E-08
Dibenz[a,h]anthracene	2.7E+01	NA	7.6E-06	--	7.3E+00	8.7E-07	6.4E-06
Indeno[1,2,3-cd]pyrene	6.1E+01	NA	1.7E-05	--	7.3E-01	1.9E-06	1.4E-06
Manganese	6.6E+03	1.4E-01	1.9E-03	1.3E-02	NA	--	--
Naphthalene	1.2E+02	2.0E-02	3.4E-05	1.7E-03	NA	--	--
Pentachlorophenol	2.8E+02	3.0E-02	7.7E-05	2.6E-03	1.2E-01	8.8E-06	1.1E-06
TCDD-TEF	6.6E-02	NA	1.9E-08	--	1.5E+05	2.1E-09	3.2E-04
Totals for Ingestion of Soil or Solids				2.4E-02	3.8E-04		

Table I-10

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 1 - CURRENT SITE VISITORS**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Oral RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Oral SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Dermal Absorption from Soil							
Acenaphthene	4.9E+02	6.0E-02	1.7E-04	2.8E-03	NA	--	--
alpha-BHC	9.2E-03	NA	3.2E-09	--	6.3E+00	3.6E-10	2.3E-09
Benzo[a]anthracene	3.6E+02	NA	1.2E-04	--	7.3E-01	1.4E-05	1.0E-05
Benzo[a]pyrene	1.5E+02	NA	5.1E-05	--	7.3E+00	5.8E-06	4.3E-05
Benzo[b]fluoranthene	1.7E+02	NA	5.9E-05	--	7.3E-01	6.7E-06	4.9E-06
Benzo[k]fluoranthene	1.6E+02	NA	5.5E-05	--	7.3E-02	6.3E-06	4.6E-07
Beryllium	2.7E+00	2.0E-03	1.9E-07	1.9E-02	NA	2.1E-08	--
Carbazole	4.5E+03	NA	1.5E-03	--	2.0E-02	1.8E-04	3.5E-06
Chromium (III)	2.1E+02	1.5E+00	1.4E-05	9.5E-05	NA	--	--
Chromium (VI)	4.1E+01	3.0E-03	2.9E-06	9.5E-03	NA	3.3E-07	--
Chrysene	4.1E+02	NA	1.4E-04	--	7.3E-03	1.6E-05	1.2E-07
Dibenz[a,h]anthracene	2.7E+01	NA	9.4E-06	--	7.3E+00	1.1E-06	7.8E-06
Indeno[1,2,3-cd]pyrene	6.1E+01	NA	2.1E-05	--	7.3E-01	2.4E-06	1.7E-06
Manganese	6.6E+03	1.4E-01	4.6E-04	3.3E-02	NA	--	--
Naphthalene	1.2E+02	2.0E-02	4.2E-05	2.1E-03	NA	--	--
Pentachlorophenol	2.8E+02	3.0E-02	4.8E-04	1.6E-02	1.2E-01	5.4E-05	6.5E-06
TCDD-TEF	6.6E-02	NA	1.4E-08	--	1.5E+05	1.6E-09	3.1E-04
Totals for Dermal Absorption from Soil				8.2E-02			3.9E-04

Table I-10

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 1 - CURRENT SITE VISITORS**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Inhalation of Vapor from Soil							
Acenaphthene	4.9E+02	6.0E-02	1.8E-05	3.1E-04	NA	--	--
alpha-BHC	9.2E-03	NA	1.4E-10	--	6.3E+00	1.5E-11	9.7E-11
Benzo[a]anthracene	3.6E+02	NA	3.2E-07	--	3.1E-01	3.6E-08	1.1E-08
Benzo[a]pyrene	1.5E+02	NA	5.0E-08	--	3.1E+00	5.7E-09	1.8E-08
Benzo[b]fluoranthene	1.7E+02	NA	3.0E-07	--	3.1E-01	3.5E-08	1.1E-08
Benzo[k]fluoranthene	1.6E+02	NA	3.4E-08	--	3.1E-02	3.9E-09	1.2E-10
Carbazole	4.5E+03	NA	1.4E-05	--	2.0E-02	1.6E-06	3.2E-08
Chrysene	4.1E+02	NA	1.2E-06	--	3.1E-03	1.4E-07	4.4E-10
Dibenz[a,h]anthracene	2.7E+01	NA	2.2E-09	--	3.1E+00	2.5E-10	7.6E-10
Indeno[1,2,3-cd]pyrene	6.1E+01	NA	8.8E-09	--	3.1E-01	1.0E-09	3.1E-10
Naphthalene	1.2E+02	8.6E-04	1.8E-05	2.1E-02	NA	--	--
Pentachlorophenol	2.8E+02	3.0E-02	1.9E-06	6.4E-05	1.2E-01	2.2E-07	2.6E-08
TCDD-TEF	6.6E-02	NA	1.8E-11	--	1.5E+05	2.1E-12	3.2E-07
Totals for Inhalation of Vapor from Soil				2.1E-02	4.2E-07		

Table I-10

ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 1 - CURRENT SITE VISITORS

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Inhalation of Fugitive Dust from Soil							
Acenaphthene	4.9E+02	6.0E-02	2.8E-09	4.7E-08	NA	--	--
alpha-BHC	9.2E-03	NA	5.3E-14	--	6.3E+00	6.1E-15	3.8E-14
Benzo[a]anthracene	3.6E+02	NA	2.1E-09	--	3.1E-01	2.4E-10	7.4E-11
Benzo[a]pyrene	1.5E+02	NA	8.5E-10	--	3.1E+00	9.8E-11	3.0E-10
Benzo[b]fluoranthene	1.7E+02	NA	9.8E-10	--	3.1E-01	1.1E-10	3.5E-11
Benzo[k]fluoranthene	1.6E+02	NA	9.2E-10	--	3.1E-02	1.1E-10	3.3E-12
Beryllium	2.7E+00	NA	1.6E-11	--	8.4E+00	1.8E-12	1.5E-11
Carbazole	4.5E+03	NA	2.6E-08	--	2.0E-02	2.9E-09	5.9E-11
Chromium (VI)	4.1E+01	2.9E-05	2.4E-10	8.2E-06	4.2E+01	2.7E-11	1.1E-09
Chrysene	4.1E+02	NA	2.4E-09	--	3.1E-03	2.7E-10	8.3E-13
Dibenz[a,h]anthracene	2.7E+01	NA	1.6E-10	--	3.1E+00	1.8E-11	5.5E-11
Indeno[1,2,3-cd]pyrene	6.1E+01	NA	3.5E-10	--	3.1E-01	4.0E-11	1.2E-11
Manganese	6.6E+03	1.4E-05	3.8E-08	2.7E-03	NA	--	--
Naphthalene	1.2E+02	8.6E-04	7.0E-10	8.1E-07	NA	--	--
Pentachlorophenol	2.8E+02	3.0E-02	1.6E-09	5.3E-08	1.2E-01	1.8E-10	2.2E-11
TCDD-TEF	6.6E-02	NA	3.8E-13	--	1.5E+05	4.4E-14	6.5E-09
Totals for Inhalation of Fugitive Dust from Soil				2.7E-03			8.3E-09

Table I-10

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 1 - CURRENT SITE VISITORS**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Oral RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Oral SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Receptor/Pathway Totals by Chemical							
Acenaphthene	4.9E+02	NA	3.2E-04	5.4E-03	NA	--	--
alpha-BHC	9.2E-03	NA	5.9E-09	--	NA	6.8E-10	4.3E-09
Benzo[a]anthracene	3.6E+02	NA	2.3E-04	--	NA	2.6E-05	1.9E-05
Benzo[a]pyrene	1.5E+02	NA	9.3E-05	--	NA	1.1E-05	7.7E-05
Benzo[b]fluoranthene	1.7E+02	NA	1.1E-04	--	NA	1.2E-05	8.9E-06
Benzo[k]fluoranthene	1.6E+02	NA	1.0E-04	--	NA	1.1E-05	8.4E-07
Beryllium	2.7E+00	NA	9.5E-07	1.9E-02	NA	1.1E-07	1.5E-11
Carbazole	4.5E+03	NA	2.8E-03	--	NA	3.2E-04	6.4E-06
Chromium (III)	2.1E+02	NA	7.2E-05	1.3E-04	NA	--	--
Chromium (VI)	4.1E+01	NA	1.4E-05	1.3E-02	NA	1.7E-06	1.1E-09
Chrysene	4.1E+02	NA	2.6E-04	--	NA	2.9E-05	2.1E-07
Dibenz[a,h]anthracene	2.7E+01	NA	1.7E-05	--	NA	1.9E-06	1.4E-05
Indeno[1,2,3-cd]pyrene	6.1E+01	NA	3.8E-05	--	NA	4.3E-06	3.2E-06
Manganese	6.6E+03	NA	2.3E-03	4.9E-02	NA	--	--
Naphthalene	1.2E+02	NA	9.4E-05	2.5E-02	NA	--	--
Pentachlorophenol	2.8E+02	NA	5.5E-04	1.8E-02	NA	6.3E-05	7.6E-06
TCDD-TEF	6.6E-02	NA	3.2E-08	--	NA	3.7E-09	6.3E-04
Totals for Receptor/Pathway Totals by Chemical				1.3E-01			7.7E-04
Totals for Scenario 1 - Current Site Visitors, Adolescent RME Case				1.3E-01			7.7E-04

Table I-11

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 2 - CURRENT NEARBY RESIDENTS**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Adult/Child (Int) RME Case							
Inhalation of Vapor from Soil							
Acenaphthene	4.9E+02	6.0E-02	3.1E-04	5.1E-03	NA	--	--
alpha-BHC	9.2E-03	NA	2.3E-09	--	6.3E+00	9.7E-10	6.1E-09
Benzo[a]anthracene	3.6E+02	NA	5.3E-06	--	3.1E-01	2.3E-06	7.0E-07
Benzo[a]pyrene	1.5E+02	NA	8.4E-07	--	3.1E+00	3.6E-07	1.1E-06
Benzo[b]fluoranthene	1.7E+02	NA	5.1E-06	--	3.1E-01	2.2E-06	6.7E-07
Benzo[k]fluoranthene	1.6E+02	NA	5.6E-07	--	3.1E-02	2.4E-07	7.5E-09
Carbazole	4.5E+03	NA	2.3E-04	--	2.0E-02	9.9E-05	2.0E-06
Chrysene	4.1E+02	NA	2.1E-05	--	3.1E-03	8.9E-06	2.8E-08
Dibenz[a,h]anthracene	2.7E+01	NA	3.6E-08	--	3.1E+00	1.5E-08	4.8E-08
Indeno[1,2,3-cd]pyrene	6.1E+01	NA	1.5E-07	--	3.1E-01	6.3E-08	1.9E-08
Naphthalene	1.2E+02	8.6E-04	3.0E-04	3.5E-01	NA	--	--
Pentachlorophenol	2.8E+02	3.0E-02	3.2E-05	1.1E-03	1.2E-01	1.4E-05	1.7E-06
TCDD-TEF	6.6E-02	NA	3.1E-10	--	1.5E+05	1.3E-10	2.0E-05
Totals for Inhalation of Vapor from Soil				3.5E-01			2.6E-05

Table I-11

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 2 - CURRENT NEARBY RESIDENTS**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Inhalation of Fugitive Dust from Soil							
Acenaphthene	4.9E+02	6.0E-02	9.0E-08	1.5E-06	NA	--	--
alpha-BHC	9.2E-03	NA	1.7E-12	--	6.3E+00	7.4E-13	4.6E-12
Benzo[a]anthracene	3.6E+02	NA	6.7E-08	--	3.1E-01	2.9E-08	8.9E-09
Benzo[a]pyrene	1.5E+02	NA	2.8E-08	--	3.1E+00	1.2E-08	3.7E-08
Benzo[b]fluoranthene	1.7E+02	NA	3.2E-08	--	3.1E-01	1.4E-08	4.2E-09
Benzo[k]fluoranthene	1.6E+02	NA	3.0E-08	--	3.1E-02	1.3E-08	4.0E-10
Beryllium	2.7E+00	NA	5.0E-10	--	8.4E+00	2.2E-10	1.8E-09
Carbazole	4.5E+03	NA	8.3E-07	--	2.0E-02	3.6E-07	7.1E-09
Chromium (VI)	4.1E+01	2.9E-05	7.7E-09	2.7E-04	4.2E+01	3.3E-09	1.4E-07
Chrysene	4.1E+02	NA	7.6E-08	--	3.1E-03	3.3E-08	1.0E-10
Dibenz[a,h]anthracene	2.7E+01	NA	5.0E-09	--	3.1E+00	2.2E-09	6.7E-09
Indeno[1,2,3-cd]pyrene	6.1E+01	NA	1.1E-08	--	3.1E-01	4.8E-09	1.5E-09
Manganese	6.6E+03	1.4E-05	1.2E-06	8.6E-02	NA	--	--
Naphthalene	1.2E+02	8.6E-04	2.3E-08	2.6E-05	NA	--	--
Pentachlorophenol	2.8E+02	3.0E-02	5.1E-08	1.7E-06	1.2E-01	2.2E-08	2.6E-09
TCDD-TEF	6.6E-02	NA	1.2E-11	--	1.5E+05	5.3E-12	7.9E-07
Totals for Inhalation of Fugitive Dust from Soil				8.7E-02			1.0E-06

Table I-11

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 2 - CURRENT NEARBY RESIDENTS**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Receptor/Pathway Totals by Chemical							
Acenaphthene	4.9E+02	NA	3.1E-04	5.1E-03	NA	--	--
alpha-BHC	9.2E-03	NA	2.3E-09	--	NA	9.7E-10	6.1E-09
Benzo[a]anthracene	3.6E+02	NA	5.4E-06	--	NA	2.3E-06	7.1E-07
Benzo[a]pyrene	1.5E+02	NA	8.6E-07	--	NA	3.7E-07	1.1E-06
Benzo[b]fluoranthene	1.7E+02	NA	5.1E-06	--	NA	2.2E-06	6.8E-07
Benzo[k]fluoranthene	1.6E+02	NA	5.9E-07	--	NA	2.5E-07	7.9E-09
Beryllium	2.7E+00	NA	5.0E-10	--	NA	2.2E-10	1.8E-09
Carbazole	4.5E+03	NA	2.3E-04	--	NA	9.9E-05	2.0E-06
Chromium (VI)	4.1E+01	NA	7.7E-09	2.7E-04	NA	3.3E-09	1.4E-07
Chrysene	4.1E+02	NA	2.1E-05	--	NA	8.9E-06	2.8E-08
Dibenz[a,h]anthracene	2.7E+01	NA	4.1E-08	--	NA	1.8E-08	5.4E-08
Indeno[1,2,3-cd]pyrene	6.1E+01	NA	1.6E-07	--	NA	6.7E-08	2.1E-08
Manganese	6.6E+03	NA	1.2E-06	8.6E-02	NA	--	--
Naphthalene	1.2E+02	NA	3.0E-04	3.5E-01	NA	--	--
Pentachlorophenol	2.8E+02	NA	3.2E-05	1.1E-03	NA	1.4E-05	1.7E-06
TCDD-TEF	6.6E-02	NA	3.2E-10	--	NA	1.4E-10	2.1E-05
Totals for Receptor/Pathway Totals by Chemical				4.4E-01			2.7E-05
Totals for Scenario 2 - Current Nearby Residents, Adult/Child (Int) RME Case				4.4E-01			2.7E-05

Table I-11

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 2 - CURRENT NEARBY RESIDENTS**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Child RME Case							
Inhalation of Vapor from Soil							
Acenaphthene	4.9E+02	6.0E-01	1.3E-03	2.2E-03	NA	--	--
alpha-BHC	9.2E-03	NA	9.8E-09	--	6.3E+00	8.4E-10	5.3E-09
Benzo[a]anthracene	3.6E+02	NA	2.3E-05	--	3.1E-01	2.0E-06	6.1E-07
Benzo[a]pyrene	1.5E+02	NA	3.6E-06	--	3.1E+00	3.1E-07	9.7E-07
Benzo[b]fluoranthene	1.7E+02	NA	2.2E-05	--	3.1E-01	1.9E-06	5.9E-07
Benzo[k]fluoranthene	1.6E+02	NA	2.5E-06	--	3.1E-02	2.1E-07	6.5E-09
Carbazole	4.5E+03	NA	1.0E-03	--	2.0E-02	8.7E-05	1.7E-06
Chrysene	4.1E+02	NA	9.1E-05	--	3.1E-03	7.8E-06	2.4E-08
Dibenz[a,h]anthracene	2.7E+01	NA	1.6E-07	--	3.1E+00	1.3E-08	4.2E-08
Indeno[1,2,3-cd]pyrene	6.1E+01	NA	6.4E-07	--	3.1E-01	5.5E-08	1.7E-08
Naphthalene	1.2E+02	8.6E-04	1.3E-03	1.5E+00	NA	--	--
Pentachlorophenol	2.8E+02	3.0E-02	1.4E-04	4.7E-03	1.2E-01	1.2E-05	1.4E-06
TCDD-TEF	6.6E-02	NA	1.3E-09	--	1.5E+05	1.2E-10	1.7E-05
Totals for Inhalation of Vapor from Soil				1.5E+00			2.3E-05

Table I-11

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 2 - CURRENT NEARBY RESIDENTS**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Inhalation of Fugitive Dust from Soil							
Acenaphthene	4.9E+02	6.0E-01	1.8E-07	2.9E-07	NA	--	--
alpha-BHC	9.2E-03	NA	3.4E-12	--	6.3E+00	2.9E-13	1.8E-12
Benzo[a]anthracene	3.6E+02	NA	1.3E-07	--	3.1E-01	1.1E-08	3.5E-09
Benzo[a]pyrene	1.5E+02	NA	5.4E-08	--	3.1E+00	4.6E-09	1.4E-08
Benzo[b]fluoranthene	1.7E+02	NA	6.2E-08	--	3.1E-01	5.3E-09	1.6E-09
Benzo[k]fluoranthene	1.6E+02	NA	5.8E-08	--	3.1E-02	5.0E-09	1.5E-10
Beryllium	2.7E+00	NA	9.8E-10	--	8.4E+00	8.4E-11	7.1E-10
Carbazole	4.5E+03	NA	1.6E-06	--	2.0E-02	1.4E-07	2.8E-09
Chromium (VI)	4.1E+01	2.9E-05	1.5E-08	5.2E-04	4.2E+01	1.3E-09	5.4E-08
Chrysene	4.1E+02	NA	1.5E-07	--	3.1E-03	1.3E-08	3.9E-11
Dibenz[a,h]anthracene	2.7E+01	NA	9.9E-09	--	3.1E+00	8.4E-10	2.6E-09
Indeno[1,2,3-cd]pyrene	6.1E+01	NA	2.2E-08	--	3.1E-01	1.9E-09	5.8E-10
Manganese	6.6E+03	1.4E-05	2.4E-06	1.7E-01	NA	--	--
Naphthalene	1.2E+02	8.6E-04	4.4E-08	5.1E-05	NA	--	--
Pentachlorophenol	2.8E+02	3.0E-02	1.0E-07	3.3E-06	1.2E-01	8.6E-09	1.0E-09
TCDD-TEF	6.6E-02	NA	2.4E-11	--	1.5E+05	2.1E-12	3.1E-07
Totals for Inhalation of Fugitive Dust from Soil				1.7E-01			3.9E-07

Table I-11

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 2 - CURRENT NEARBY RESIDENTS**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Receptor/Pathway Totals by Chemical							
Acenaphthene	4.9E+02	NA	1.3E-03	2.2E-03	NA	--	--
alpha-BHC	9.2E-03	NA	9.8E-09	--	NA	8.4E-10	5.3E-09
Benzo[a]anthracene	3.6E+02	NA	2.3E-05	--	NA	2.0E-06	6.2E-07
Benzo[a]pyrene	1.5E+02	NA	3.7E-06	--	NA	3.2E-07	9.8E-07
Benzo[b]fluoranthene	1.7E+02	NA	2.2E-05	--	NA	1.9E-06	5.9E-07
Benzo[k]fluoranthene	1.6E+02	NA	2.5E-06	--	NA	2.2E-07	6.7E-09
Beryllium	2.7E+00	NA	9.8E-10	--	NA	8.4E-11	7.1E-10
Carbazole	4.5E+03	NA	1.0E-03	--	NA	8.7E-05	1.7E-06
Chromium (VI)	4.1E+01	NA	1.5E-08	5.2E-04	NA	1.3E-09	5.4E-08
Chrysene	4.1E+02	NA	9.1E-05	--	NA	7.8E-06	2.4E-08
Dibenz[a,h]anthracene	2.7E+01	NA	1.7E-07	--	NA	1.4E-08	4.4E-08
Indeno[1,2,3-cd]pyrene	6.1E+01	NA	6.6E-07	--	NA	5.7E-08	1.8E-08
Manganese	6.6E+03	NA	2.4E-06	1.7E-01	NA	--	--
Naphthalene	1.2E+02	NA	1.3E-03	1.5E+00	NA	--	--
Pentachlorophenol	2.8E+02	NA	1.4E-04	4.7E-03	NA	1.2E-05	1.4E-06
TCDD-TEF	6.6E-02	NA	1.4E-09	--	NA	1.2E-10	1.8E-05
Totals for Receptor/Pathway Totals by Chemical				1.7E+00			2.3E-05
Totals for Scenario 2 - Current Nearby Residents, Child RME Case				1.7E+00			2.3E-05

Table I-12

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 3 - FUTURE PERMANENT SITE WORKER**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Oral RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Oral SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Adult RME Case							
Ingestion of Soil or Solids							
Acenaphthene	3.6E+02	6.0E-02	1.8E-04	2.9E-03	NA	--	--
alpha-BHC	5.2E-03	NA	2.6E-09	--	6.3E+00	9.1E-10	5.8E-09
Benzene	4.2E+00	3.0E-03	2.1E-06	6.8E-04	2.9E-02	7.3E-07	2.1E-08
Benzo[a]anthracene	2.6E+02	NA	1.3E-04	--	7.3E-01	4.6E-05	3.3E-05
Benzo[a]pyrene	1.1E+02	NA	5.3E-05	--	7.3E+00	1.9E-05	1.4E-04
Benzo[b]fluoranthene	1.2E+02	NA	6.1E-05	--	7.3E-01	2.2E-05	1.6E-05
Benzo[k]fluoranthene	1.2E+02	NA	5.6E-05	--	7.3E-02	2.0E-05	1.5E-06
Beryllium	2.0E+00	2.0E-03	9.6E-07	4.8E-04	NA	3.4E-07	--
Carbazole	3.5E+02	NA	1.7E-04	--	2.0E-02	6.2E-05	1.2E-06
Chromium (III)	1.1E+02	1.5E+00	5.6E-05	3.7E-05	NA	--	--
Chromium (VI)	2.3E+01	3.0E-03	1.1E-05	3.7E-03	NA	4.0E-06	--
Chrysene	2.9E+02	NA	1.4E-04	--	7.3E-03	5.1E-05	3.7E-07
Dibenz[a,h]anthracene	2.0E+01	NA	9.8E-06	--	7.3E+00	3.5E-06	2.5E-05
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	2.2E-05	--	7.3E-01	7.7E-06	5.6E-06
Manganese	4.8E+03	1.4E-01	2.3E-03	1.7E-02	NA	--	--
Naphthalene	1.4E+02	2.0E-02	6.6E-05	3.3E-03	NA	--	--
Pentachlorophenol	1.1E+02	3.0E-02	5.2E-05	1.7E-03	1.2E-01	1.9E-05	2.2E-06
TCDD-TEF	6.6E-02	NA	3.2E-08	--	1.5E+05	1.2E-08	1.7E-03
Totals for Ingestion of Soil or Solids				3.0E-02	2.0E-03		

Table I-12

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 3 - FUTURE PERMANENT SITE WORKER**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Oral RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Oral SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Dermal Absorption from Soil							
Acenaphthene	3.6E+02	6.0E-02	8.8E-04	1.5E-02	NA	--	--
alpha-BHC	5.2E-03	NA	1.3E-08	--	6.3E+00	4.6E-09	2.9E-08
Benzene	4.2E+00	3.0E-03	1.0E-04	3.4E-02	2.9E-02	3.7E-05	1.1E-06
Benzo[a]anthracene	2.6E+02	NA	6.4E-04	--	7.3E-01	2.3E-04	1.7E-04
Benzo[a]pyrene	1.1E+02	NA	2.6E-04	--	7.3E+00	9.4E-05	6.9E-04
Benzo[b]fluoranthene	1.2E+02	NA	3.0E-04	--	7.3E-01	1.1E-04	7.9E-05
Benzo[k]fluoranthene	1.2E+02	NA	2.8E-04	--	7.3E-02	1.0E-04	7.3E-06
Beryllium	2.0E+00	2.0E-03	9.6E-07	9.6E-02	NA	3.4E-07	--
Carbazole	3.5E+02	NA	8.6E-04	--	2.0E-02	3.1E-04	6.2E-06
Chromium (III)	1.1E+02	1.5E+00	5.6E-05	3.7E-04	NA	--	--
Chromium (VI)	2.3E+01	3.0E-03	1.1E-05	3.7E-02	NA	4.0E-06	--
Chrysene	2.9E+02	NA	7.2E-04	--	7.3E-03	2.6E-04	1.9E-06
Dibenz[a,h]anthracene	2.0E+01	NA	4.9E-05	--	7.3E+00	1.7E-05	1.3E-04
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	1.1E-04	--	7.3E-01	3.9E-05	2.8E-05
Manganese	4.8E+03	1.4E-01	2.3E-03	1.7E-01	NA	--	--
Naphthalene	1.4E+02	2.0E-02	3.3E-04	1.7E-02	NA	--	--
Pentachlorophenol	1.1E+02	3.0E-02	1.3E-03	4.4E-02	1.2E-01	4.7E-04	5.6E-05
TCDD-TEF	6.6E-02	NA	9.7E-08	--	1.5E+05	3.5E-08	7.0E-03
Totals for Dermal Absorption from Soil				4.1E-01			8.1E-03

Table I-12

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 3 - FUTURE PERMANENT SITE WORKER**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Inhalation of Vapor from Soil							
Acenaphthene	3.6E+02	6.0E-02	1.5E-04	2.5E-03	NA	--	--
alpha-BHC	5.2E-03	NA	8.4E-10	--	6.3E+00	3.0E-10	1.9E-09
Benzene	4.2E+00	1.7E-03	1.4E-04	8.2E-02	2.9E-02	5.0E-05	1.4E-06
Benzo[a]anthracene	2.6E+02	NA	2.5E-06	--	3.1E-01	9.0E-07	2.8E-07
Benzo[a]pyrene	1.1E+02	NA	4.0E-07	--	3.1E+00	1.4E-07	4.4E-07
Benzo[b]fluoranthene	1.2E+02	NA	2.4E-06	--	3.1E-01	8.7E-07	2.7E-07
Benzo[k]fluoranthene	1.2E+02	NA	2.7E-07	--	3.1E-02	9.5E-08	2.9E-09
Carbazole	3.5E+02	NA	1.2E-05	--	2.0E-02	4.3E-06	8.6E-08
Chrysene	2.9E+02	NA	9.8E-06	--	3.1E-03	3.5E-06	1.1E-08
Dibenz[a,h]anthracene	2.0E+01	NA	1.7E-08	--	3.1E+00	6.2E-09	1.9E-08
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	7.0E-08	--	3.1E-01	2.5E-08	7.8E-09
Naphthalene	1.4E+02	8.6E-04	2.2E-04	2.6E-01	NA	--	--
Pentachlorophenol	1.1E+02	3.0E-02	8.2E-06	2.7E-04	1.2E-01	2.9E-06	3.5E-07
TCDD-TEF	6.6E-02	NA	2.0E-10	--	1.5E+05	7.2E-11	1.1E-05
Totals for Inhalation of Vapor from Soil				3.4E-01			1.4E-05

Table I-12

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 3 - FUTURE PERMANENT SITE WORKER**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Inhalation of Fugitive Dust from Soil							
Acenaphthene	3.6E+02	6.0E-02	5.3E-08	8.8E-07	NA	--	--
alpha-BHC	5.2E-03	NA	7.7E-13	--	6.3E+00	2.8E-13	1.7E-12
Benzene	4.2E+00	1.7E-03	6.2E-10	3.6E-07	2.9E-02	2.2E-10	6.4E-12
Benzo[a]anthracene	2.6E+02	NA	3.8E-08	--	3.1E-01	1.4E-08	4.3E-09
Benzo[a]pyrene	1.1E+02	NA	1.6E-08	--	3.1E+00	5.7E-09	1.8E-08
Benzo[b]fluoranthene	1.2E+02	NA	1.8E-08	--	3.1E-01	6.5E-09	2.0E-09
Benzo[k]fluoranthene	1.2E+02	NA	1.7E-08	--	3.1E-02	6.0E-09	1.9E-10
Beryllium	2.0E+00	NA	2.9E-10	--	8.4E+00	1.0E-10	8.7E-10
Carbazole	3.5E+02	NA	5.2E-08	--	2.0E-02	1.9E-08	3.7E-10
Chromium (VI)	2.3E+01	2.9E-05	3.4E-09	1.2E-04	4.2E+01	1.2E-09	5.0E-08
Chrysene	2.9E+02	NA	4.3E-08	--	3.1E-03	1.5E-08	4.8E-11
Dibenz[a,h]anthracene	2.0E+01	NA	2.9E-09	--	3.1E+00	1.0E-09	3.3E-09
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	6.5E-09	--	3.1E-01	2.3E-09	7.2E-10
Manganese	4.8E+03	1.4E-05	7.0E-07	4.9E-02	NA	--	--
Naphthalene	1.4E+02	8.6E-04	2.0E-08	2.3E-05	NA	--	--
Pentachlorophenol	1.1E+02	3.0E-02	1.6E-08	5.3E-07	1.2E-01	5.6E-09	6.8E-10
TCDD-TEF	6.6E-02	NA	9.8E-12	--	1.5E+05	3.5E-12	5.2E-07
Totals for Inhalation of Fugitive Dust from Soil				4.9E-02			6.0E-07

Table I-12

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 3 - FUTURE PERMANENT SITE WORKER**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Oral RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Oral SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Receptor/Pathway Totals by Chemical							
Acenaphthene	3.6E+02	NA	1.2E-03	2.0E-02	NA	--	--
alpha-BHC	5.2E-03	NA	1.6E-08	--	NA	5.8E-09	3.6E-08
Benzene	4.2E+00	NA	2.4E-04	1.2E-01	NA	8.7E-05	2.5E-06
Benzo[a]anthracene	2.6E+02	NA	7.7E-04	--	NA	2.7E-04	2.0E-04
Benzo[a]pyrene	1.1E+02	NA	3.2E-04	--	NA	1.1E-04	8.3E-04
Benzo[b]fluoranthene	1.2E+02	NA	3.7E-04	--	NA	1.3E-04	9.5E-05
Benzo[k]fluoranthene	1.2E+02	NA	3.4E-04	--	NA	1.2E-04	8.8E-06
Beryllium	2.0E+00	NA	1.9E-06	9.7E-02	NA	6.9E-07	8.7E-10
Carbazole	3.5E+02	NA	1.0E-03	--	NA	3.7E-04	7.5E-06
Chromium (III)	1.1E+02	NA	1.1E-04	4.1E-04	NA	--	--
Chromium (VI)	2.3E+01	NA	2.2E-05	4.1E-02	NA	8.0E-06	5.0E-08
Chrysene	2.9E+02	NA	8.7E-04	--	NA	3.1E-04	2.3E-06
Dibenz[a,h]anthracene	2.0E+01	NA	5.9E-05	--	NA	2.1E-05	1.5E-04
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	1.3E-04	--	NA	4.6E-05	3.4E-05
Manganese	4.8E+03	NA	4.7E-03	2.3E-01	NA	--	--
Naphthalene	1.4E+02	NA	6.2E-04	2.8E-01	NA	--	--
Pentachlorophenol	1.1E+02	NA	1.4E-03	4.6E-02	NA	4.9E-04	5.9E-05
TCDD-TEF	6.6E-02	NA	1.3E-07	--	NA	4.6E-08	8.7E-03
Totals for Receptor/Pathway Totals by Chemical				8.3E-01			1.0E-02
Totals for Scenario 3 - Future Permanent Site Worker, Adult RME Case				8.3E-01			1.0E-02

Table I-13

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 4 - FUTURE PERMANENT SITE WORKER**

Chemical	Exposure Point Concentration (mg/L)	Noncarcinogenic Effects			Carcinogenic Effects		
		Oral RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Oral SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Adult RME Case							
Ingestion of Water							
2,4-Dimethylphenol	1.5E+01	2.0E-02	1.5E-01	7.3E+00	NA	--	--
2-Methylphenol	2.1E+01	5.0E-02	2.1E-01	4.1E+00	NA	7.3E-02	--
Acenaphthene	4.6E-01	6.0E-02	4.5E-03	7.5E-02	NA	--	--
Arsenic	2.5E-02	3.0E-04	2.4E-04	8.0E-01	1.5E+00	8.6E-05	1.3E-04
Benzene	6.6E+00	3.0E-03	6.5E-02	2.2E+01	2.9E-02	2.3E-02	6.7E-04
Benzo[a]anthracene	1.9E-01	NA	1.9E-03	--	7.3E-01	6.6E-04	4.8E-04
Benzo[b]fluoranthene	1.8E-01	NA	1.8E-03	--	7.3E-01	6.3E-04	4.6E-04
Benzo[k]fluoranthene	1.2E-01	NA	1.2E-03	--	7.3E-02	4.2E-04	3.1E-05
Chloroform	8.0E-03	1.0E-02	7.8E-05	7.8E-03	6.1E-03	2.8E-05	1.7E-07
Chrysene	1.9E-01	NA	1.9E-03	--	7.3E-03	6.6E-04	4.8E-06
Ethylbenzene	8.0E-01	1.0E-01	7.8E-03	7.8E-02	NA	--	--
Manganese	5.8E+00	4.7E-02	5.7E-02	1.2E+00	NA	--	--
Methylene Chloride	2.4E-02	6.0E-02	2.3E-04	3.9E-03	7.5E-03	8.4E-05	6.3E-07
Naphthalene	2.1E+01	2.0E-02	2.1E-01	1.0E+01	NA	--	--
Pentachlorophenol	1.4E+00	3.0E-02	1.4E-02	4.6E-01	1.2E-01	4.9E-03	5.9E-04
Phenol	6.0E+00	6.0E-01	5.9E-02	9.8E-02	NA	--	--
Thallium	4.4E-03	8.0E-05	4.3E-05	5.4E-01	NA	--	--
Toluene	3.4E+00	2.0E-01	3.3E-02	1.7E-01	NA	--	--
Totals for Ingestion of Water				4.7E+01	2.4E-03		
Ingestion of Water							
2,4-Dimethylphenol	1.0E-03	2.0E-02	9.8E-06	4.9E-04	NA	--	--
bis(2-Ethylhexyl)phthalate	2.0E-03	2.0E-02	2.0E-05	9.8E-04	1.4E-02	7.0E-06	9.8E-08
Manganese	9.9E-01	4.7E-02	9.7E-03	2.1E-01	NA	--	--
Methylene Chloride	3.0E-03	6.0E-02	2.9E-05	4.9E-04	7.5E-03	1.0E-05	7.9E-08
Naphthalene	1.2E-02	2.0E-02	1.2E-04	5.9E-03	NA	--	--
Pentachlorophenol	4.8E-02	3.0E-02	4.7E-04	1.6E-02	1.2E-01	1.7E-04	2.0E-05
Totals for Ingestion of Water				2.3E-01	2.0E-05		

Table I-13

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 4 - FUTURE PERMANENT SITE WORKER**

Chemical	Exposure Point Concentration (mg/L)	Noncarcinogenic Effects			Carcinogenic Effects		
		Oral RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Oral SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Ingestion of Water							
1,2-Dichloroethane	3.0E-03	NA	2.9E-05	--	9.1E-02	1.0E-05	9.5E-07
Acenaphthene	1.0E-02	6.0E-02	9.8E-05	1.6E-03	NA	--	--
Arsenic	3.2E-03	3.0E-04	3.1E-05	1.0E-01	1.5E+00	1.1E-05	1.7E-05
Manganese	8.9E-01	4.7E-02	8.7E-03	1.8E-01	NA	--	--
Methylene Chloride	8.0E-03	6.0E-02	7.8E-05	1.3E-03	7.5E-03	2.8E-05	2.1E-07
Totals for Ingestion of Water				2.9E-01			1.8E-05
Ingestion of Water							
Acenaphthene	1.1E-01	6.0E-02	1.1E-03	1.8E-02	NA	--	--
alpha-BHC	2.6E-04	NA	2.5E-06	--	6.3E+00	9.1E-07	5.7E-06
Arsenic	6.4E-02	3.0E-04	6.3E-04	2.1E+00	1.5E+00	2.2E-04	3.4E-04
Benzene	9.0E-03	3.0E-03	8.8E-05	2.9E-02	2.9E-02	3.1E-05	9.1E-07
Ethylbenzene	1.7E-02	1.0E-01	1.7E-04	1.7E-03	NA	--	--
Manganese	4.9E+00	4.7E-02	4.8E-02	1.0E+00	NA	--	--
Methylene Chloride	3.0E-03	6.0E-02	2.9E-05	4.9E-04	7.5E-03	1.0E-05	7.9E-08
Pentachlorophenol	8.8E+01	3.0E-02	8.6E-01	2.9E+01	1.2E-01	3.1E-01	3.7E-02
Toluene	6.5E-02	2.0E-01	6.4E-04	3.2E-03	NA	--	--
Trichloroethene	9.0E-03	6.0E-03	8.8E-05	1.5E-02	1.1E-02	3.1E-05	3.5E-07
Totals for Ingestion of Water				3.2E+01			3.7E-02
Totals for Scenario 4 - Future Permanent Site Worker, Adult RME Case				4.0E+01			2.0E-02

Table I-14

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 5 - FUTURE SITE CONSTRUCTION WORKER**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Oral RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Oral SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Adult RME Case							
Ingestion of Soil or Solids							
Acenaphthene	3.6E+02	6.0E-01	2.1E-03	3.5E-03	NA	--	--
alpha-BHC	5.2E-03	NA	3.1E-08	--	6.3E+00	6.7E-11	4.3E-10
Benzene	4.2E+00	3.0E-03	2.5E-05	8.2E-03	2.9E-02	5.4E-08	1.6E-09
Benzo[a]anthracene	2.6E+02	NA	1.5E-03	--	7.3E-01	3.4E-06	2.5E-06
Benzo[a]pyrene	1.1E+02	NA	6.3E-04	--	7.3E+00	1.4E-06	1.0E-05
Benzo[b]fluoranthene	1.2E+02	NA	7.3E-04	--	7.3E-01	1.6E-06	1.2E-06
Benzo[k]fluoranthene	1.2E+02	NA	6.7E-04	--	7.3E-02	1.5E-06	1.1E-07
Beryllium	2.0E+00	2.0E-03	1.2E-05	5.8E-03	NA	2.5E-08	--
Carbazole	3.5E+02	NA	2.1E-03	--	2.0E-02	4.6E-06	9.1E-08
Chromium (III)	1.1E+02	1.5E+00	6.7E-04	4.4E-04	NA	--	--
Chromium (VI)	2.3E+01	2.0E-02	1.3E-04	6.7E-03	NA	2.9E-07	--
Chrysene	2.9E+02	NA	1.7E-03	--	7.3E-03	3.8E-06	2.8E-08
Dibenz[a,h]anthracene	2.0E+01	NA	1.2E-04	--	7.3E+00	2.6E-07	1.9E-06
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	2.6E-04	--	7.3E-01	5.7E-07	4.2E-07
Manganese	4.8E+03	1.4E-01	2.8E-02	2.0E-01	NA	--	--
Naphthalene	1.4E+02	2.0E-02	7.9E-04	4.0E-02	NA	--	--
Pentachlorophenol	1.1E+02	3.0E-02	6.3E-04	2.1E-02	1.2E-01	1.4E-06	1.7E-07
TCDD-TEF	6.6E-02	NA	3.9E-07	--	1.5E+05	8.6E-10	1.3E-04
Totals for Ingestion of Soil or Solids				2.9E-01			1.4E-04

Table I-14

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 5 - FUTURE SITE CONSTRUCTION WORKER**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Oral RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Oral SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Dermal Absorption from Soil							
Acenaphthene	3.6E+02	6.0E-01	1.1E-03	1.8E-03	NA	--	--
alpha-BHC	5.2E-03	NA	1.6E-08	--	6.3E+00	3.5E-11	2.2E-10
Benzene	4.2E+00	3.0E-03	1.3E-04	4.3E-02	2.9E-02	2.8E-07	8.2E-09
Benzo[a]anthracene	2.6E+02	NA	8.0E-04	--	7.3E-01	1.8E-06	1.3E-06
Benzo[a]pyrene	1.1E+02	NA	3.3E-04	--	7.3E+00	7.2E-07	5.3E-06
Benzo[b]fluoranthene	1.2E+02	NA	3.8E-04	--	7.3E-01	8.3E-07	6.1E-07
Benzo[k]fluoranthene	1.2E+02	NA	3.5E-04	--	7.3E-02	7.7E-07	5.6E-08
Beryllium	2.0E+00	2.0E-03	1.2E-06	1.2E-01	NA	2.6E-09	--
Carbazole	3.5E+02	NA	1.1E-03	--	2.0E-02	2.4E-06	4.7E-08
Chromium (III)	1.1E+02	1.5E+00	7.0E-05	4.6E-04	NA	--	--
Chromium (VI)	2.3E+01	2.0E-02	1.4E-05	7.0E-03	NA	3.1E-08	--
Chrysene	2.9E+02	NA	9.0E-04	--	7.3E-03	2.0E-06	1.4E-08
Dibenz[a,h]anthracene	2.0E+01	NA	6.1E-05	--	7.3E+00	1.3E-07	9.8E-07
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	1.3E-04	--	7.3E-01	3.0E-07	2.2E-07
Manganese	4.8E+03	1.4E-01	2.9E-03	2.1E-01	NA	--	--
Naphthalene	1.4E+02	2.0E-02	4.1E-04	2.1E-02	NA	--	--
Pentachlorophenol	1.1E+02	3.0E-02	1.6E-03	5.5E-02	1.2E-01	3.6E-06	4.3E-07
TCDD-TEF	6.6E-02	NA	1.2E-07	--	1.5E+05	2.7E-10	5.4E-05
Totals for Dermal Absorption from Soil				4.6E-01	6.2E-05		

Table I-14

ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 5 - FUTURE SITE CONSTRUCTION WORKER

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Inhalation of Vapor from Soil - Construction							
Acenaphthene	3.6E+02	6.0E-01	2.4E-02	3.9E-02	NA	--	--
alpha-BHC	5.2E-03	NA	1.3E-07	--	6.3E+00	2.9E-10	1.9E-09
Benzene	4.2E+00	1.7E-02	2.2E-02	1.3E+00	2.9E-02	4.9E-05	1.4E-06
Benzo[a]anthracene	2.6E+02	NA	4.0E-04	--	3.1E-01	8.8E-07	2.7E-07
Benzo[a]pyrene	1.1E+02	NA	6.4E-05	--	3.1E+00	1.4E-07	4.3E-07
Benzo[b]fluoranthene	1.2E+02	NA	3.9E-04	--	3.1E-01	8.5E-07	2.6E-07
Benzo[k]fluoranthene	1.2E+02	NA	4.2E-05	--	3.1E-02	9.3E-08	2.9E-09
Carbazole	3.5E+02	NA	1.9E-03	--	2.0E-02	4.2E-06	8.4E-08
Chrysene	2.9E+02	NA	1.6E-03	--	3.1E-03	3.4E-06	1.1E-08
Dibenz[a,h]anthracene	2.0E+01	NA	2.8E-06	--	3.1E+00	6.1E-09	1.9E-08
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	1.1E-05	--	3.1E-01	2.5E-08	7.6E-09
Naphthalene	1.4E+02	8.6E-04	3.5E-02	4.1E+01	NA	--	--
Pentachlorophenol	1.1E+02	3.0E-02	1.3E-03	4.4E-02	1.2E-01	2.9E-06	3.4E-07
TCDD-TEF	6.6E-02	NA	3.2E-08	--	1.5E+05	7.1E-11	1.1E-05
Totals for Inhalation of Vapor from Soil - Construction				4.2E+01			1.3E-05

Table I-14

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 5 - FUTURE SITE CONSTRUCTION WORKER**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Inhalation of Fugitive Dust - Construction							
Acenaphthene	3.6E+02	6.0E-01	3.7E-07	6.1E-07	NA	--	--
alpha-BHC	5.2E-03	NA	5.4E-12	--	6.3E+00	1.2E-14	7.4E-14
Benzene	4.2E+00	1.7E-02	4.3E-09	2.5E-07	2.9E-02	9.5E-12	2.7E-13
Benzo[a]anthracene	2.6E+02	NA	2.7E-07	--	3.1E-01	5.9E-10	1.8E-10
Benzo[a]pyrene	1.1E+02	NA	1.1E-07	--	3.1E+00	2.4E-10	7.5E-10
Benzo[b]fluoranthene	1.2E+02	NA	1.3E-07	--	3.1E-01	2.8E-10	8.7E-11
Benzo[k]fluoranthene	1.2E+02	NA	1.2E-07	--	3.1E-02	2.6E-10	8.0E-12
Beryllium	2.0E+00	NA	2.0E-09	--	8.4E+00	4.4E-12	3.7E-11
Carbazole	3.5E+02	NA	3.6E-07	--	2.0E-02	8.0E-10	1.6E-11
Chromium (VI)	2.3E+01	2.9E-05	2.3E-08	8.0E-04	4.2E+01	5.1E-11	2.2E-09
Chrysene	2.9E+02	NA	3.0E-07	--	3.1E-03	6.6E-10	2.1E-12
Dibenz[a,h]anthracene	2.0E+01	NA	2.0E-08	--	3.1E+00	4.5E-11	1.4E-10
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	4.5E-08	--	3.1E-01	9.9E-11	3.1E-11
Manganese	4.8E+03	1.4E-05	4.9E-06	3.4E-01	NA	--	--
Naphthalene	1.4E+02	8.6E-04	1.4E-07	1.6E-04	NA	--	--
Pentachlorophenol	1.1E+02	3.0E-02	1.1E-07	3.7E-06	1.2E-01	2.4E-10	2.9E-11
TCDD-TEF	6.6E-02	NA	6.8E-11	--	1.5E+05	1.5E-13	2.2E-08
Totals for Inhalation of Fugitive Dust - Construction				3.4E-01			2.6E-08

Table I-14

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 5 - FUTURE SITE CONSTRUCTION WORKER**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Oral RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Oral SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Receptor/Pathway Totals by Chemical							
Acenaphthene	3.6E+02	NA	2.7E-02	4.5E-02	NA	--	--
alpha-BHC	5.2E-03	NA	1.8E-07	--	NA	4.0E-10	2.5E-09
Benzene	4.2E+00	NA	2.2E-02	1.3E+00	NA	4.9E-05	1.4E-06
Benzo[a]anthracene	2.6E+02	NA	2.7E-03	--	NA	6.0E-06	4.0E-06
Benzo[a]pyrene	1.1E+02	NA	1.0E-03	--	NA	2.3E-06	1.6E-05
Benzo[b]fluoranthene	1.2E+02	NA	1.5E-03	--	NA	3.3E-06	2.0E-06
Benzo[k]fluoranthene	1.2E+02	NA	1.1E-03	--	NA	2.3E-06	1.7E-07
Beryllium	2.0E+00	NA	1.3E-05	1.3E-01	NA	2.8E-08	3.7E-11
Carbazole	3.5E+02	NA	5.1E-03	--	NA	1.1E-05	2.2E-07
Chromium (III)	1.1E+02	NA	7.4E-04	9.1E-04	NA	--	--
Chromium (VI)	2.3E+01	NA	1.5E-04	1.4E-02	NA	3.2E-07	2.2E-09
Chrysene	2.9E+02	NA	4.2E-03	--	NA	9.2E-06	5.3E-08
Dibenz[a,h]anthracene	2.0E+01	NA	1.8E-04	--	NA	4.0E-07	2.9E-06
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	4.0E-04	--	NA	8.9E-07	6.4E-07
Manganese	4.8E+03	NA	3.1E-02	7.5E-01	NA	--	--
Naphthalene	1.4E+02	NA	3.6E-02	4.1E+01	NA	--	--
Pentachlorophenol	1.1E+02	NA	3.6E-03	1.2E-01	NA	7.9E-06	9.4E-07
TCDD-TEF	6.6E-02	NA	5.4E-07	--	NA	1.2E-09	1.9E-04
Totals for Receptor/Pathway Totals by Chemical				4.3E+01			2.2E-04
Totals for Scenario 5 - Future Site Construction Worker, Adult RME Case				4.3E+01			2.2E-04

Table I-15

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 6 - FUTURE NEARBY RESIDENTS**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Adult/Child (Int) RME Case							
Inhalation of Vapor from Soil							
Acenaphthene	3.6E+02	6.0E-02	2.3E-04	3.8E-03	NA	--	--
alpha-BHC	5.2E-03	NA	1.3E-09	--	6.3E+00	5.5E-10	3.5E-09
Benzene	4.2E+00	1.7E-03	2.1E-04	1.2E-01	2.9E-02	9.1E-05	2.6E-06
Benzo[a]anthracene	2.6E+02	NA	3.8E-06	--	3.1E-01	1.6E-06	5.1E-07
Benzo[a]pyrene	1.1E+02	NA	6.1E-07	--	3.1E+00	2.6E-07	8.1E-07
Benzo[b]fluoranthene	1.2E+02	NA	3.7E-06	--	3.1E-01	1.6E-06	4.9E-07
Benzo[k]fluoranthene	1.2E+02	NA	4.0E-07	--	3.1E-02	1.7E-07	5.4E-09
Carbazole	3.5E+02	NA	1.8E-05	--	2.0E-02	7.8E-06	1.6E-07
Chrysene	2.9E+02	NA	1.5E-05	--	3.1E-03	6.4E-06	2.0E-08
Dibenz[a,h]anthracene	2.0E+01	NA	2.6E-08	--	3.1E+00	1.1E-08	3.5E-08
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	1.1E-07	--	3.1E-01	4.6E-08	1.4E-08
Naphthalene	1.4E+02	8.6E-04	3.3E-04	3.9E-01	NA	--	--
Pentachlorophenol	1.1E+02	3.0E-02	1.2E-05	4.2E-04	1.2E-01	5.4E-06	6.4E-07
TCDD-TEF	6.6E-02	NA	3.1E-10	--	1.5E+05	1.3E-10	2.0E-05
Totals for Inhalation of Vapor from Soil				5.2E-01	2.5E-05		

Table I-15

ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 6 - FUTURE NEARBY RESIDENTS

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Inhalation of Fugitive Dust from Soil							
Accnaphthene	3.6E+02	6.0E-02	6.7E-08	1.1E-06	NA	--	--
alpha-BHC	5.2E-03	NA	9.7E-13	--	6.3E+00	4.2E-13	2.6E-12
Benzene	4.2E+00	1.7E-03	7.8E-10	4.6E-07	2.9E-02	3.3E-10	9.7E-12
Benzo[a]anthracene	2.6E+02	NA	4.9E-08	--	3.1E-01	2.1E-08	6.4E-09
Benzo[a]pyrene	1.1E+02	NA	2.0E-08	--	3.1E+00	8.6E-09	2.7E-08
Benzo[b]fluoranthene	1.2E+02	NA	2.3E-08	--	3.1E-01	9.9E-09	3.1E-09
Benzo[k]fluoranthene	1.2E+02	NA	2.1E-08	--	3.1E-02	9.2E-09	2.8E-10
Beryllium	2.0E+00	NA	3.7E-10	--	8.4E+00	1.6E-10	1.3E-09
Carbazole	3.5E+02	NA	6.6E-08	--	2.0E-02	2.8E-08	5.6E-10
Chromium (VI)	2.3E+01	2.9E-05	4.2E-09	1.5E-04	4.2E+01	1.8E-09	7.6E-08
Chrysene	2.9E+02	NA	5.5E-08	--	3.1E-03	2.3E-08	7.3E-11
Dibenz[a,h]anthracene	2.0E+01	NA	3.7E-09	--	3.1E+00	1.6E-09	4.9E-09
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	8.2E-09	--	3.1E-01	3.5E-09	1.1E-09
Manganese	4.8E+03	1.4E-05	8.9E-07	6.2E-02	NA	--	--
Naphthalene	1.4E+02	8.6E-04	2.5E-08	2.9E-05	NA	--	--
Pentachlorophenol	1.1E+02	3.0E-02	2.0E-08	6.6E-07	1.2E-01	8.5E-09	1.0E-09
TCDD-TEF	6.6E-02	NA	1.2E-11	--	1.5E+05	5.3E-12	7.9E-07
Totals for Inhalation of Fugitive Dust from Soil				6.2E-02			9.1E-07

Table I-15

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 6 - FUTURE NEARBY RESIDENTS**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Receptor/Pathway Totals by Chemical							
Acenaphthene	3.6E+02	NA	2.3E-04	3.8E-03	NA	--	--
alpha-BHC	5.2E-03	NA	1.3E-09	--	NA	5.5E-10	3.5E-09
Benzene	4.2E+00	NA	2.1E-04	1.2E-01	NA	9.1E-05	2.6E-06
Benzo[a]anthracene	2.6E+02	NA	3.9E-06	--	NA	1.7E-06	5.1E-07
Benzo[a]pyrene	1.1E+02	NA	6.3E-07	--	NA	2.7E-07	8.3E-07
Benzo[b]fluoranthene	1.2E+02	NA	3.7E-06	--	NA	1.6E-06	4.9E-07
Benzo[k]fluoranthene	1.2E+02	NA	4.2E-07	--	NA	1.8E-07	5.6E-09
Beryllium	2.0E+00	NA	3.7E-10	--	NA	1.6E-10	1.3E-09
Carbazole	3.5E+02	NA	1.8E-05	--	NA	7.9E-06	1.6E-07
Chromium (VI)	2.3E+01	NA	4.2E-09	1.5E-04	NA	1.8E-09	7.6E-08
Chrysene	2.9E+02	NA	1.5E-05	--	NA	6.4E-06	2.0E-08
Dibenz[a,h]anthracene	2.0E+01	NA	3.0E-08	--	NA	1.3E-08	4.0E-08
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	1.1E-07	--	NA	4.9E-08	1.5E-08
Manganese	4.8E+03	NA	8.9E-07	6.2E-02	NA	--	--
Naphthalene	1.4E+02	NA	3.3E-04	3.9E-01	NA	--	--
Pentachlorophenol	1.1E+02	NA	1.3E-05	4.2E-04	NA	5.4E-06	6.4E-07
TCDD-TEF	6.6E-02	NA	3.2E-10	--	NA	1.4E-10	2.1E-05
Totals for Receptor/Pathway Totals by Chemical				5.8E-01	2.6E-05		
Totals for Scenario 6 - Future Nearby Residents, Adult/Child (Int) RME Case				5.8E-01	2.6E-05		

Table I-15

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 6 - FUTURE NEARBY RESIDENTS**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Child RME Case							
Inhalation of Vapor from Soil							
Acenaphthene	3.6E+02	6.0E-01	9.9E-04	1.6E-03	NA	--	--
alpha-BHC	5.2E-03	NA	5.6E-09	--	6.3E+00	4.8E-10	3.0E-09
Benzene	4.2E+00	1.7E-02	9.3E-04	5.4E-02	2.9E-02	7.9E-05	2.3E-06
Benzo[a]anthracene	2.6E+02	NA	1.7E-05	--	3.1E-01	1.4E-06	4.4E-07
Benzo[a]pyrene	1.1E+02	NA	2.7E-06	--	3.1E+00	2.3E-07	7.0E-07
Benzo[b]fluoranthene	1.2E+02	NA	1.6E-05	--	3.1E-01	1.4E-06	4.3E-07
Benzo[k]fluoranthene	1.2E+02	NA	1.8E-06	--	3.1E-02	1.5E-07	4.7E-09
Carbazole	3.5E+02	NA	8.0E-05	--	2.0E-02	6.8E-06	1.4E-07
Chrysene	2.9E+02	NA	6.5E-05	--	3.1E-03	5.6E-06	1.7E-08
Dibenz[a,h]anthracene	2.0E+01	NA	1.2E-07	--	3.1E+00	9.9E-09	3.1E-08
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	4.6E-07	--	3.1E-01	4.0E-08	1.2E-08
Naphthalene	1.4E+02	8.6E-04	1.5E-03	1.7E+00	NA	--	--
Pentachlorophenol	1.1E+02	3.0E-02	5.5E-05	1.8E-03	1.2E-01	4.7E-06	5.6E-07
TCDD-TEF	6.6E-02	NA	1.3E-09	--	1.5E+05	1.2E-10	1.7E-05
Totals for Inhalation of Vapor from Soil				1.8E+00			2.2E-05

Table I-15

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 6 - FUTURE NEARBY RESIDENTS**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Inhalation of Fugitive Dust from Soil							
Acenaphthene	3.6E+02	6.0E-01	1.3E-07	2.2E-07	NA	--	--
alpha-BHC	5.2E-03	NA	1.9E-12	--	6.3E+00	1.6E-13	1.0E-12
Benzene	4.2E+00	1.7E-02	1.5E-09	8.9E-08	2.9E-02	1.3E-10	3.8E-12
Benzo[a]anthracene	2.6E+02	NA	9.5E-08	--	3.1E-01	8.1E-09	2.5E-09
Benzo[a]pyrene	1.1E+02	NA	3.9E-08	--	3.1E+00	3.4E-09	1.0E-08
Benzo[b]fluoranthene	1.2E+02	NA	4.5E-08	--	3.1E-01	3.9E-09	1.2E-09
Benzo[k]fluoranthene	1.2E+02	NA	4.2E-08	--	3.1E-02	3.6E-09	1.1E-10
Beryllium	2.0E+00	NA	7.1E-10	--	8.4E+00	6.1E-11	5.1E-10
Carbazole	3.5E+02	NA	1.3E-07	--	2.0E-02	1.1E-08	2.2E-10
Chromium (VI)	2.3E+01	2.9E-05	8.3E-09	2.8E-04	4.2E+01	7.1E-10	3.0E-08
Chrysene	2.9E+02	NA	1.1E-07	--	3.1E-03	9.1E-09	2.8E-11
Dibenz[a,h]anthracene	2.0E+01	NA	7.2E-09	--	3.1E+00	6.2E-10	1.9E-09
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	1.6E-08	--	3.1E-01	1.4E-09	4.2E-10
Manganese	4.8E+03	1.4E-05	1.7E-06	1.2E-01	NA	--	--
Naphthalene	1.4E+02	8.6E-04	4.9E-08	5.7E-05	NA	--	--
Pentachlorophenol	1.1E+02	3.0E-02	3.9E-08	1.3E-06	1.2E-01	3.3E-09	4.0E-10
TCDD-TEF	6.6E-02	NA	2.4E-11	--	1.5E+05	2.1E-12	3.1E-07
Totals for Inhalation of Fugitive Dust from Soil				1.2E-01			3.6E-07

Table I-15

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 6 - FUTURE NEARBY RESIDENTS**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Receptor/Pathway Totals by Chemical							
Acenaphthene	3.6E+02	NA	9.9E-04	1.6E-03	NA	--	--
alpha-BHC	5.2E-03	NA	5.6E-09	--	NA	4.8E-10	3.0E-09
Benzene	4.2E+00	NA	9.3E-04	5.4E-02	NA	7.9E-05	2.3E-06
Benzo[a]anthracene	2.6E+02	NA	1.7E-05	--	NA	1.4E-06	4.4E-07
Benzo[a]pyrene	1.1E+02	NA	2.7E-06	--	NA	2.3E-07	7.1E-07
Benzo[b]fluoranthene	1.2E+02	NA	1.6E-05	--	NA	1.4E-06	4.3E-07
Benzo[k]fluoranthene	1.2E+02	NA	1.8E-06	--	NA	1.5E-07	4.8E-09
Beryllium	2.0E+00	NA	7.1E-10	--	NA	6.1E-11	5.1E-10
Carbazole	3.5E+02	NA	8.0E-05	--	NA	6.8E-06	1.4E-07
Chromium (VI)	2.3E+01	NA	8.3E-09	2.8E-04	NA	7.1E-10	3.0E-08
Chrysene	2.9E+02	NA	6.5E-05	--	NA	5.6E-06	1.7E-08
Dibenz[a,h]anthracene	2.0E+01	NA	1.2E-07	--	NA	1.0E-08	3.3E-08
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	4.8E-07	--	NA	4.1E-08	1.3E-08
Manganese	4.8E+03	NA	1.7E-06	1.2E-01	NA	--	--
Naphthalene	1.4E+02	NA	1.5E-03	1.7E+00	NA	--	--
Pentachlorophenol	1.1E+02	NA	5.5E-05	1.8E-03	NA	4.7E-06	5.6E-07
TCDD-TEF	6.6E-02	NA	1.4E-09	--	NA	1.2E-10	1.8E-05
Totals for Receptor/Pathway Totals by Chemical				1.9E+00			2.2E-05
Totals for Scenario 6 - Future Nearby Residents, Child RME Case				1.9E+00			2.2E-05

Table I-16

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 7 - FUTURE NEARBY RESIDENTS DURING CONSTRUCTION**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Adult RME Case							
Inhalation of Vapor from Soil - Construction							
Acenaphthene	3.6E+02	6.0E-01	2.5E-02	4.2E-02	NA	--	--
alpha-BHC	5.2E-03	NA	1.4E-07	--	6.3E+00	3.1E-10	2.0E-09
Benzene	4.2E+00	1.7E-02	2.4E-02	1.4E+00	2.9E-02	5.2E-05	1.5E-06
Benzo[a]anthracene	2.6E+02	NA	4.2E-04	--	3.1E-01	9.3E-07	2.9E-07
Benzo[a]pyrene	1.1E+02	NA	6.7E-05	--	3.1E+00	1.5E-07	4.6E-07
Benzo[b]fluoranthene	1.2E+02	NA	4.1E-04	--	3.1E-01	9.0E-07	2.8E-07
Benzo[k]fluoranthene	1.2E+02	NA	4.5E-05	--	3.1E-02	9.8E-08	3.0E-09
Carbazole	3.5E+02	NA	2.0E-03	--	2.0E-02	4.5E-06	8.9E-08
Chrysene	2.9E+02	NA	1.7E-03	--	3.1E-03	3.6E-06	1.1E-08
Dibenz[a,h]anthracene	2.0E+01	NA	2.9E-06	--	3.1E+00	6.4E-09	2.0E-08
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	1.2E-05	--	3.1E-01	2.6E-08	8.1E-09
Naphthalene	1.4E+02	8.6E-04	3.7E-02	4.3E+01	NA	--	--
Pentachlorophenol	1.1E+02	3.0E-02	1.4E-03	4.6E-02	1.2E-01	3.0E-06	3.7E-07
TCDD-TEF	6.6E-02	NA	3.4E-08	--	1.5E+05	7.5E-11	1.1E-05
Totals for Inhalation of Vapor from Soil - Construction				4.5E+01			1.4E-05

Table I-16

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 7 - FUTURE NEARBY RESIDENTS DURING CONSTRUCTION**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Inhalation of Fugitive Dust - Construction							
Acenaphthene	3.6E+02	6.0E-01	3.1E-07	5.2E-07	NA	--	--
alpha-BHC	5.2E-03	NA	4.6E-12	--	6.3E+00	1.0E-14	6.3E-14
Benzene	4.2E+00	1.7E-02	3.7E-09	2.1E-07	2.9E-02	8.0E-12	2.3E-13
Benzo[a]anthracene	2.6E+02	NA	2.3E-07	--	3.1E-01	5.0E-10	1.6E-10
Benzo[a]pyrene	1.1E+02	NA	9.4E-08	--	3.1E+00	2.1E-10	6.4E-10
Benzo[b]fluoranthene	1.2E+02	NA	1.1E-07	--	3.1E-01	2.4E-10	7.4E-11
Benzo[k]fluoranthene	1.2E+02	NA	1.0E-07	--	3.1E-02	2.2E-10	6.8E-12
Beryllium	2.0E+00	NA	1.7E-09	--	8.4E+00	3.8E-12	3.2E-11
Carbazole	3.5E+02	NA	3.1E-07	--	2.0E-02	6.8E-10	1.4E-11
Chromium (VI)	2.3E+01	2.9E-05	2.0E-08	6.8E-04	4.2E+01	4.4E-11	1.8E-09
Chrysene	2.9E+02	NA	2.6E-07	--	3.1E-03	5.6E-10	1.7E-12
Dibenz[a,h]anthracene	2.0E+01	NA	1.7E-08	--	3.1E+00	3.8E-11	1.2E-10
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	3.8E-08	--	3.1E-01	8.4E-11	2.6E-11
Manganese	4.8E+03	1.4E-05	4.2E-06	2.9E-01	NA	--	--
Naphthalene	1.4E+02	8.6E-04	1.2E-07	1.4E-04	NA	--	--
Pentachlorophenol	1.1E+02	3.0E-02	9.3E-08	3.1E-06	1.2E-01	2.1E-10	2.5E-11
TCDD-TEF	6.6E-02	NA	5.8E-11	--	1.5E+05	1.3E-13	1.9E-08
Totals for Inhalation of Fugitive Dust - Construction				2.9E-01			2.2E-08

Table I-16

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 7 - FUTURE NEARBY RESIDENTS DURING CONSTRUCTION**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Receptor/Pathway Totals by Chemical							
Acenaphthene	3.6E+02	NA	2.5E-02	4.2E-02	NA	--	--
alpha-BHC	5.2E-03	NA	1.4E-07	--	NA	3.1E-10	2.0E-09
Benzene	4.2E+00	NA	2.4E-02	1.4E+00	NA	5.2E-05	1.5E-06
Benzo[a]anthracene	2.6E+02	NA	4.2E-04	--	NA	9.3E-07	2.9E-07
Benzo[a]pyrene	1.1E+02	NA	6.7E-05	--	NA	1.5E-07	4.6E-07
Benzo[b]fluoranthene	1.2E+02	NA	4.1E-04	--	NA	9.0E-07	2.8E-07
Benzo[k]fluoranthene	1.2E+02	NA	4.5E-05	--	NA	9.9E-08	3.1E-09
Beryllium	2.0E+00	NA	1.7E-09	--	NA	3.8E-12	3.2E-11
Carbazole	3.5E+02	NA	2.0E-03	--	NA	4.5E-06	8.9E-08
Chromium (VI)	2.3E+01	NA	2.0E-08	6.8E-04	NA	4.4E-11	1.8E-09
Chrysene	2.9E+02	NA	1.7E-03	--	NA	3.6E-06	1.1E-08
Dibenz[a,h]anthracene	2.0E+01	NA	2.9E-06	--	NA	6.5E-09	2.0E-08
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	1.2E-05	--	NA	2.6E-08	8.1E-09
Manganese	4.8E+03	NA	4.2E-06	2.9E-01	NA	--	--
Naphthalene	1.4E+02	NA	3.7E-02	4.3E+01	NA	--	--
Pentachlorophenol	1.1E+02	NA	1.4E-03	4.6E-02	NA	3.0E-06	3.7E-07
TCDD-TEF	6.6E-02	NA	3.4E-08	--	NA	7.5E-11	1.1E-05
Totals for Receptor/Pathway Totals by Chemical				4.5E+01			1.4E-05
Totals for Scenario 7 - Future Nearby Residents During Construction, Adult RME Case				4.5E+01			1.4E-05

Table I-16

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 7 - FUTURE NEARBY RESIDENTS DURING CONSTRUCTION**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Child RME Case							
Inhalation of Vapor from Soil - Construction							
Acenaphthene	3.6E+02	6.0E-01	6.4E-02	1.1E-01	NA	--	--
alpha-BHC	5.2E-03	NA	3.6E-07	--	6.3E+00	8.0E-10	5.0E-09
Benzene	4.2E+00	1.7E-02	6.0E-02	3.5E+00	2.9E-02	1.3E-04	3.9E-06
Benzo[a]anthracene	2.6E+02	NA	1.1E-03	--	3.1E-01	2.4E-06	7.4E-07
Benzo[a]pyrene	1.1E+02	NA	1.7E-04	--	3.1E+00	3.8E-07	1.2E-06
Benzo[b]fluoranthene	1.2E+02	NA	1.0E-03	--	3.1E-01	2.3E-06	7.2E-07
Benzo[k]fluoranthene	1.2E+02	NA	1.1E-04	--	3.1E-02	2.5E-07	7.8E-09
Carbazole	3.5E+02	NA	5.2E-03	--	2.0E-02	1.1E-05	2.3E-07
Chrysene	2.9E+02	NA	4.2E-03	--	3.1E-03	9.3E-06	2.9E-08
Dibenz[a,h]anthracene	2.0E+01	NA	7.5E-06	--	3.1E+00	1.6E-08	5.1E-08
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	3.0E-05	--	3.1E-01	6.7E-08	2.1E-08
Naphthalene	1.4E+02	8.6E-04	9.5E-02	1.1E+02	NA	--	--
Pentachlorophenol	1.1E+02	3.0E-02	3.5E-03	1.2E-01	1.2E-01	7.8E-06	9.4E-07
TCDD-TEF	6.6E-02	NA	8.8E-08	--	1.5E+05	1.9E-10	2.9E-05
Totals for Inhalation of Vapor from Soil - Construction				1.1E+02			3.7E-05

Table I-16

ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 7 - FUTURE NEARBY RESIDENTS DURING CONSTRUCTION

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Inhalation of Fugitive Dust - Construction							
Acenaphthene	3.6E+02	6.0E-01	8.0E-07	1.3E-06	NA	--	--
alpha-BHC	5.2E-03	NA	1.2E-11	--	6.3E+00	2.6E-14	1.6E-13
Benzene	4.2E+00	1.7E-02	9.4E-09	5.5E-07	2.9E-02	2.1E-11	6.0E-13
Benzo[a]anthracene	2.6E+02	NA	5.8E-07	--	3.1E-01	1.3E-09	4.0E-10
Benzo[a]pyrene	1.1E+02	NA	2.4E-07	--	3.1E+00	5.3E-10	1.6E-09
Benzo[b]fluoranthene	1.2E+02	NA	2.8E-07	--	3.1E-01	6.1E-10	1.9E-10
Benzo[k]fluoranthene	1.2E+02	NA	2.6E-07	--	3.1E-02	5.6E-10	1.8E-11
Beryllium	2.0E+00	NA	4.4E-09	--	8.4E+00	9.7E-12	8.1E-11
Carbazole	3.5E+02	NA	7.9E-07	--	2.0E-02	1.7E-09	3.5E-11
Chromium (VI)	2.3E+01	2.9E-05	5.1E-08	1.8E-03	4.2E+01	1.1E-10	4.7E-09
Chrysene	2.9E+02	NA	6.6E-07	--	3.1E-03	1.4E-09	4.5E-12
Dibenz[a,h]anthracene	2.0E+01	NA	4.5E-08	--	3.1E+00	9.8E-11	3.0E-10
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	9.8E-08	--	3.1E-01	2.2E-10	6.7E-11
Manganese	4.8E+03	1.4E-05	1.1E-05	7.5E-01	NA	--	--
Naphthalene	1.4E+02	8.6E-04	3.0E-07	3.5E-04	NA	--	--
Pentachlorophenol	1.1E+02	3.0E-02	2.4E-07	8.0E-06	1.2E-01	5.3E-10	6.3E-11
TCDD-TEF	6.6E-02	NA	1.5E-10	--	1.5E+05	3.3E-13	4.9E-08
Totals for Inhalation of Fugitive Dust - Construction				7.5E-01			5.6E-08

Table I-16

**ESTIMATES OF POTENTIAL EXPOSURES AND RISKS FOR THE JENNISON-WRIGHT SITE, GRANITE CITY, ILLINOIS
SCENARIO 7 - FUTURE NEARBY RESIDENTS DURING CONSTRUCTION**

Chemical	Exposure Point Concentration (mg/kg)	Noncarcinogenic Effects			Carcinogenic Effects		
		Inh RfD (mg/kg-day)	ADI (mg/kg-day)	Hazard Quotient	Inh SF (mg/kg-day) ⁻¹	LADI (mg/kg-day)	Cancer Risk
Receptor/Pathway Totals by Chemical							
Acenaphthene	3.6E+02	NA	6.4E-02	1.1E-01	NA	--	--
alpha-BHC	5.2E-03	NA	3.6E-07	--	NA	8.0E-10	5.0E-09
Benzene	4.2E+00	NA	6.0E-02	3.5E+00	NA	1.3E-04	3.9E-06
Benzo[a]anthracene	2.6E+02	NA	1.1E-03	--	NA	2.4E-06	7.4E-07
Benzo[a]pyrene	1.1E+02	NA	1.7E-04	--	NA	3.8E-07	1.2E-06
Benzo[b]fluoranthene	1.2E+02	NA	1.0E-03	--	NA	2.3E-06	7.2E-07
Benzo[k]fluoranthene	1.2E+02	NA	1.1E-04	--	NA	2.5E-07	7.8E-09
Beryllium	2.0E+00	NA	4.4E-09	--	NA	9.7E-12	8.1E-11
Carbazole	3.5E+02	NA	5.2E-03	--	NA	1.1E-05	2.3E-07
Chromium (VI)	2.3E+01	NA	5.1E-08	1.8E-03	NA	1.1E-10	4.7E-09
Chrysene	2.9E+02	NA	4.2E-03	--	NA	9.3E-06	2.9E-08
Dibenz[a,h]anthracene	2.0E+01	NA	7.5E-06	--	NA	1.7E-08	5.1E-08
Indeno[1,2,3-cd]pyrene	4.4E+01	NA	3.0E-05	--	NA	6.7E-08	2.1E-08
Manganese	4.8E+03	NA	1.1E-05	7.5E-01	NA	--	--
Naphthalene	1.4E+02	NA	9.5E-02	1.1E+02	NA	--	--
Pentachlorophenol	1.1E+02	NA	3.5E-03	1.2E-01	NA	7.8E-06	9.4E-07
TCDD-TEF	6.6E-02	NA	8.8E-08	--	NA	1.9E-10	2.9E-05
Totals for Receptor/Pathway Totals by Chemical				1.2E+02			3.7E-05
Totals for Scenario 7 - Future Nearby Residents During Construction, Child RME Case				1.2E+02			3.7E-05

Appendix I, Tables I10 through I16

Key:

ADI	=	Average daily intake.
LADI	=	Lifetime average daily intake.
mg/kg	=	Milligrams per kilogram or parts per million.
mg/kg-day	=	Milligrams per kilogram (body weight) per day (intake rate or dosage).
RfD	=	Reference dose.
RME	=	Reasonable maximum exposure.
SIF	=	Summary intake factor.
SF	=	Slope factor.

Source: Ecology and Environment, Inc., 1999.

***** CH0017 ADI COVERS.WPD-5/11/99

LEAD MODEL Version 0.99d**CASE:** Child Receptor, Site-wide average soil lead concentration**AIR CONCENTRATION:** 0.100 µg Pb/m³ DEFAULT
Indoor AIR Pb Conc: 30.0 percent of outdoor.

Other AIR Parameters:

Age	Time Outdoors (hr)	Vent. Rate (m ³ /day)	Lung Abs. (%)
0-1	1.0	2.0	32.0
1-2	2.0	3.0	32.0
2-3	3.0	5.0	32.0
3-4	4.0	5.0	32.0
4-5	4.0	5.0	32.0
5-6	4.0	7.0	32.0
6-7	4.0	7.0	32.0

DIET: DEFAULT**DRINKING WATER Conc:** 4.00 µg Pb/L DEFAULT
WATER Consumption: DEFAULT**SOIL & DUST:**

Soil: user varied by year

Dust: Multiple Source Analysis

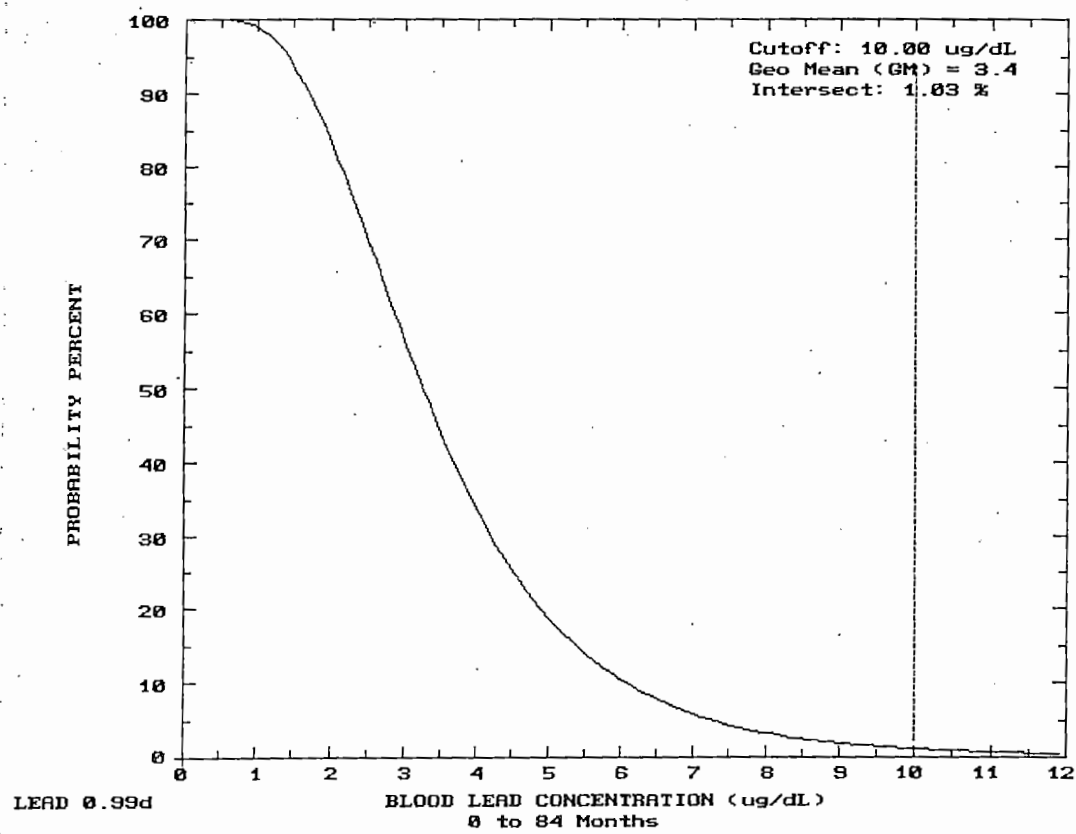
Age	Soil (µg Pb/g)	House Dust (µg Pb/g)
0-1	200.0	150.0
1-2	200.0	150.0
2-3	200.0	150.0
3-4	200.0	150.0
4-5	200.0	150.0
5-6	194.5	146.1
6-7	194.5	146.1

Additional Dust Sources: None DEFAULT
Soil contribution conversion factor: 0.70
Air contribution conversion factor: 100.0**PAINT Intake:** 0.00 µg Pb/day DEFAULT**MATERNAL CONTRIBUTION:** Infant Model
Maternal Blood Conc: 2.50 µg Pb/dL**CALCULATED BLOOD Pb and Pb UPTAKES:**

YEAR	Blood Level (µg/dL)	Total Uptake (µg/day)	Soil+Dust Uptake (µg/day)		
0.5-1:	3.8	7.00	4.06		
1-2:	4.2	10.00	6.40		
2-3:	3.9	10.49	6.46		
3-4:	3.7	10.51	6.54		
4-5:	3.1	8.91	4.93		
5-6:	2.7	8.60	4.35		
6-7:	2.5	8.72	4.12		

YEAR	Diet Uptake (µg/day)	Water Uptake (µg/day)	Paint Uptake (µg/day)	Air Uptake (µg/day)
0.5-1:	2.55	0.37	0.00	0.02
1-2:	2.65	0.92	0.00	0.03
2-3:	3.00	0.96	0.00	0.06
3-4:	2.92	0.99	0.00	0.07
4-5:	2.86	1.05	0.00	0.07
5-6:	3.04	1.11	0.00	0.09
6-7:	3.37	1.14	0.00	0.09

Graph of Distribution Probability Percent for Average Lead Concentration Case



LEAD MODEL Version 0.99d

CASE: Child Receptor, Maximum detected soil lead concentration

AIR CONCENTRATION: 0.100 µg Pb/m3 DEFAULT
Indoor AIR Pb Conc: 30.0 percent of outdoor.
Other AIR Parameters:

Age	Time Outdoors (hr)	Vent. Rate (m3/day)	Lung Abs. (%)
0-1	1.0	2.0	32.0
1-2	2.0	3.0	32.0
2-3	3.0	5.0	32.0
3-4	4.0	5.0	32.0
4-5	4.0	5.0	32.0
5-6	4.0	7.0	32.0
6-7	4.0	7.0	32.0

DIET: DEFAULT

DRINKING WATER Conc: 4.00 µg Pb/L DEFAULT
WATER Consumption: DEFAULT

SOIL & DUST:
Soil: user varied by year
Dust: Multiple Source Analysis

Age	Soil (µg Pb/g)	House Dust (µg Pb/g)
0-1	200.0	150.0
1-2	200.0	150.0
2-3	200.0	150.0
3-4	200.0	150.0
4-5	200.0	150.0
5-6	253.1	187.2
6-7	253.1	187.2

Additional Dust Sources: None DEFAULT
Soil contribution conversion factor: 0.70
Air contribution conversion factor: 100.0

PAINT Intake: 0.00 µg Pb/day DEFAULT

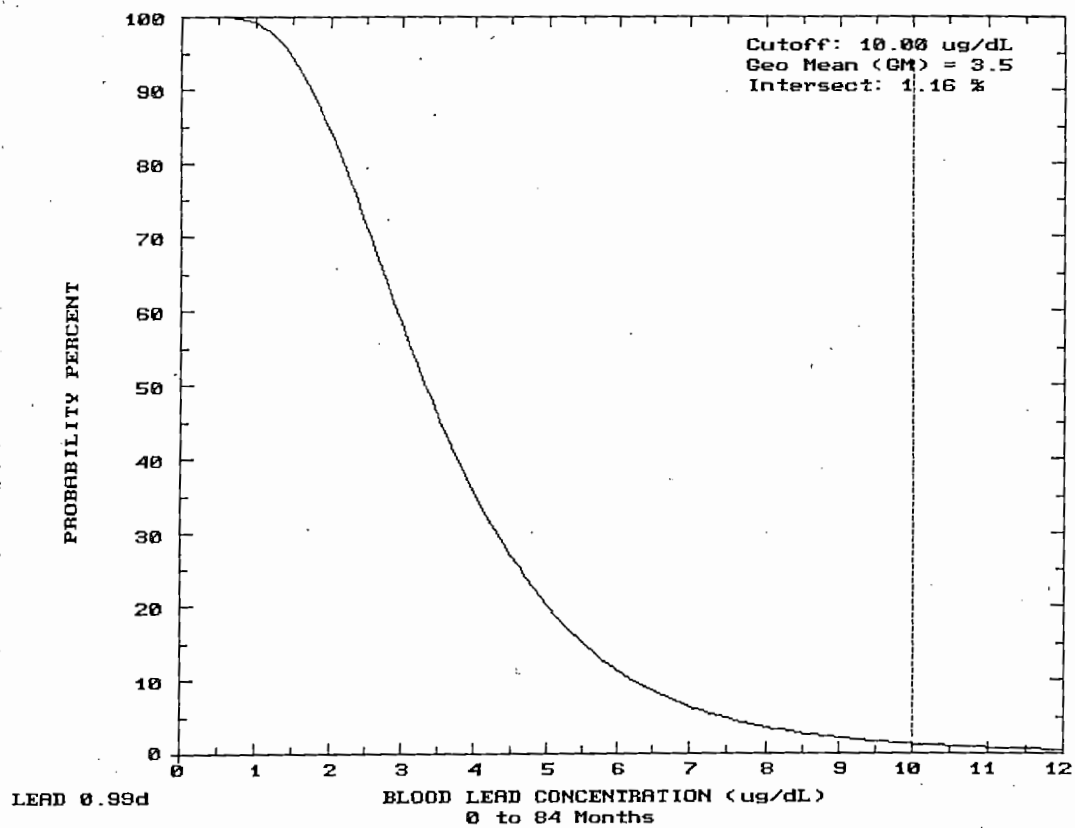
MATERNAL CONTRIBUTION: Infant Model
Maternal Blood Conc: 2.50 µg Pb/dL

CALCULATED BLOOD Pb and Pb UPTAKES:

YEAR	Blood Level (µg/dL)	Total Uptake (µg/day)	Soil+Dust Uptake (µg/day)	
0.5-1:	3.8	7.00	4.06	
1-2:	4.2	10.00	6.40	
2-3:	3.9	10.49	6.46	
3-4:	3.7	10.51	6.54	
4-5:	3.1	8.91	4.93	
5-6:	3.0	9.81	5.58	
6-7:	2.8	9.87	5.29	

YEAR	Diet Uptake (µg/day)	Water Uptake (µg/day)	Paint Uptake (µg/day)	Air Uptake (µg/day)
0.5-1:	2.55	0.37	0.00	0.02
1-2:	2.65	0.92	0.00	0.03
2-3:	3.00	0.96	0.00	0.06
3-4:	2.92	0.99	0.00	0.07
4-5:	2.86	1.05	0.00	0.07
5-6:	3.02	1.11	0.00	0.09
6-7:	3.35	1.13	0.00	0.09

Graph of Distribution Probability Percent for Maximum Detected Concentration Case



I2

Health Effects Summaries

HEALTH EFFECTS SUMMARIES

The health effects summaries describe the potential toxic properties of the chemicals of concern at the Jennison-Wright site. For carcinogens, the weight-of-evidence category is also included. The sources of EPA's toxicity values are also discussed. Most of the information in the summaries is drawn from the Public Health Statement in the Agency for Toxic Substances and Disease Registry's (ATSDR) toxicological profiles (ATSDR 1989-1996), from EPA's IRIS and HEAST databases, or from other EPA documents.

Arsenic

Arsenic, a naturally occurring element, is present at low levels in soil, water, and air. It is usually found in combination with one or more elements such as oxygen, chlorine, or sulfur; these compounds are called inorganic arsenic. Arsenic is also found in plants, animals, fish, and shellfish, usually in combination with carbon and hydrogen; these compounds, called organic arsenic, are generally less toxic than inorganic arsenic. Arsenic is widely distributed in the environment from natural sources, but higher concentrations have been found to occur in association with chemical waste, smelting of copper and other metals, fossil fuel combustion, and pesticide use. The primary use of arsenic is as a wood preservative, but it is also used to make insect and weed killers and pharmaceuticals.

Arsenic does not break down in the environment, but it can change from one form to another. Most arsenic compounds are soluble in water but do not evaporate. Arsenic can be released into the air when minerals containing arsenic are processed or smelted, or when materials containing arsenic are burned. Airborne particles containing arsenic can settle on the ground, surface water, and plants. Fish and shellfish accumulate arsenic in their tissues, but most of the arsenic in fish is the less toxic organic arsenic.

Most people are routinely exposed to low levels of arsenic because it is naturally occurring and low levels are present in food, water, soil, and air. Workers in several industries (nonferrous smelting, wood preservation, arsenical pharmaceutical production, and production and application of arsenical pesticides) may be exposed to significantly higher levels. Higher exposures also can result from breathing sawdust or smoke from wood treated with arsenic.

Inorganic arsenic is a human poison; organic arsenic is less harmful. Ingestion of food or water with high levels of inorganic arsenic (60 mg/kg in food or 60 mg/L in water) can be fatal. Chronic arsenic overexposure may cause many health effects, including body weight changes, changes in the blood, and liver and kidney damage. Arsenic damages many tissues,

including nerves, stomach, intestines, liver, kidneys, and skin. Breathing high levels can irritate the throat and lungs. Lower levels of exposure to inorganic arsenic may cause nausea, vomiting, and diarrhea; decreased production of red and white blood cells; abnormal heart rhythm; blood vessel damage; and a "pins and needles" sensation in the hands and feet. Long-term exposure to inorganic arsenic may lead to a darkening of the skin (hyperpigmentation), and the appearance of small "corns" or "warts" (keratosis) on the palms, soles, and torso. Direct skin contact may cause redness and swelling.

The critical or most sensitive effects of arsenic exposure, based on chronic oral exposure to humans, are hyperpigmentation of the skin, keratosis, and possible vascular complications. The oral RfD for arsenic, 3×10^{-4} mg/kg-day, is based on chronic human exposure to elevated levels of inorganic arsenic in drinking water. The principal study upon which the reference dose is based included more than 40,000 individuals, and there are a number of supporting studies. Confidence in the principal study is considered medium. An extremely large number of people were included in the study, but the doses were not well-characterized and other contaminants were present. The supporting human toxicity database is extensive but somewhat flawed. Problems exist with all of the epidemiological studies; however, the database does support the choice of a NOAEL. Confidence in the database as a whole and in the RfD is considered medium.

Arsenic is classified as a Group A human carcinogen by EPA. Epidemiologic studies and case reports have shown that ingesting inorganic arsenic increases the risk of cancer of the skin, lungs, bladder, and kidneys. Breathing inorganic arsenic increases the risk of lung cancer. An oral slope factor and inhalation unit risk have been derived for arsenic.

The oral slope factor, $1.5 \text{ (mg/kg-day)}^{-1}$, is based on increased incidence of skin cancer in humans who consumed drinking water with high arsenic concentrations. The oral slope factor was based on the principal study, which was considered the most appropriate study available. However, uncertainties about the dosages in that study lead the EPA administrator to conclude that the slope factor estimates based on that study could be modified downward by as much as an order of magnitude relative to estimates for most other carcinogens.

The inhalation unit risk for arsenic, $0.0043 \text{ (}\mu\text{g/m}^3\text{)}^{-1}$, which converts to an inhalation slope factor of $15 \text{ (mg/kg-day)}^{-1}$, is derived from observations of increased lung cancer mortality in occupationally exposed males. Data from several studies were combined to obtain the final unit risk estimates. Overall, a large study population was observed. Exposure assessments included both work place air and urinary arsenic measurements. The unit risk estimated from the individual studies that were combined to obtain the final estimate all fell within a factor of 6 of

one another. All of these factors lead to medium confidence in the final inhalation unit risk estimate.

Benzene

Benzene occurs in the environment as a result of both natural processes and human activity. Today, most benzene is produced from petroleum sources. Benzene has a long history of industrial use, most notable as a solvent and as a starting material for the synthesis of other chemicals.

Benzene evaporates easily, and exposure of the general public to benzene occurs mainly by breathing contaminated air. The major sources of benzene in air are gasoline and automobile exhaust, tobacco smoke, and industrial emissions. It has been estimated that 50 percent of the exposure to benzene in the United States is due to tobacco smoke. Household products including glues, paints, furniture wax, and detergents also can be a source of exposure.

Benzene is readily absorbed by inhalation and ingestion, but is absorbed to a lesser extent through the skin. Most of what is known about the human health effects of benzene exposure is based on studies of workers, who were usually exposed for long periods to high concentrations of benzene.

Benzene is toxic to blood-forming organs and to the immune system. Excessive exposure (inhalation of concentrations of 10 to 100 ppm) can result in anemia, a weakened immune system, and headaches. Occupational exposure to benzene may be associated with spontaneous abortions and miscarriages (supported by limited animal data), and certain developmental abnormalities such as low birth weight, delayed bone formation, and bone marrow toxicity. Benzene is classified as a Group A human carcinogen based on numerous studies documenting excess leukemia mortality among occupationally exposed workers.

The oral and inhalation slope factors for benzene, 2.9×10^{-2} and 2.91×10^{-2} mg/kg-day⁻¹, respectively, are based on the statistically significant increased incidence of leukemia in individuals with 5 or more years of occupational inhalation exposure to benzene. The slope factors were derived using pooled data from two occupational studies. The pooled cohorts were sufficiently large and were followed for an adequate time period.

EPA has also derived a provisional subchronic inhalation RfC for benzene based on effects on the hematopoietic (blood-forming) system observed in mice after subchronic inhalation exposure. An uncertainty factor of 100 was applied to the LOAEL for interspecies extrapolation, intraspecies variability, and use of the LOAEL rather than a NOEL. Confidence in

the provisional RfC is medium, reflecting medium confidence in the principal study and the database.

Beryllium

Pure beryllium is a hard, gray metal. It occurs as a chemical component of certain rocks. The minerals bertrandite and beryl are mined commercially for the recovery of beryllium. Most beryllium ore is purified for use in electronics, aerospace industry, X-ray machines, nuclear weapons, nuclear reactors, and mirrors. Beryllium oxide is used in the manufacture of specialty ceramics.

Beryllium compounds are naturally present in soils, where they are generally immobile, but deposition of atmospheric beryllium and disposal of beryllium-containing wastes can increase the levels in localized areas. Beryllium is released into the air by natural sources such as volcanic dust; however, the major emission source to the environment is the burning of coal and oil. Beryllium occurs naturally in tobacco and can be inhaled in cigarette smoke. Some beryllium compounds dissolve in water.

In general, the primary route of exposure to beryllium is inhalation, because relatively little beryllium is absorbed from the gastrointestinal (GI) tract or through the skin. Industrial workers involved in the mining, milling, and processing of beryllium to alloys or beryllium oxide have the highest exposure to beryllium.

The respiratory tract is the major target organ for damage due to inhalation exposure to beryllium. Exposure to high levels of beryllium in air can cause lung damage and a disease that is similar to pneumonia. The resulting lung damage may be reversible once inhalation of air containing beryllium ceases. It also is possible that people exposed to low levels of beryllium will develop an inflammatory reaction called berylliosis, an immune reaction characterized by noncancerous growths on the lungs. The disease, which occurs in individuals who are hypersensitive or allergic to beryllium, can occur long after exposure to small amounts of beryllium. Both the short-term, pneumonia-like disease and the berylliosis can cause death.

Ingestion of beryllium has not been reported to cause effects in humans because very little beryllium can move from the stomach and intestines into the bloodstream. Beryllium contact with scraped or cut skin can cause rashes or ulcers.

The oral RfD for beryllium, 5×10^{-3} mg/kg-day, is derived from a NOAEL of 5 ppm in drinking water administered to rats for their entire lifetime. The uncertainty factor of 100 accounts for interspecies extrapolation and protection of sensitive human subpopulations. Confidence in the principal study is considered low because only one dose level was

administered. Although numerous supporting studies exist, including one which indicates a higher dose level might be a NOAEL, the studies are considered of low to medium quality and thus the database is given a low confidence rating. The overall confidence in the RfD is low, reflecting the need for more oral route toxicity data.

Epidemiological studies have indicated that an increased risk of lung cancer may result from exposure to beryllium in industrial settings. In addition, laboratory studies have shown that breathing beryllium causes lung cancer in animals. However, it is not clear whether excess cancer risk is associated with ingestion of beryllium.

The EPA has classified beryllium as a Group B2, probable human carcinogen, based on limited human evidence and animal data. The International Agency for Research on Cancer (IARC) has concluded that there is sufficient evidence that beryllium is an animal carcinogen, but there is limited human evidence. Consequently, IARC concludes that beryllium should be considered a suspected human carcinogen.

The oral slope factor for beryllium has been withdrawn from IRIS. The inhalation unit risk for beryllium, $0.0024 (\mu\text{g}/\text{m}^3)^{-1}$, is derived from human occupational exposure studies. Inhalation risk estimates were based on the data provided in one study in which the smoking-adjusted expected lung cancer deaths ranged from 13.91 to 14.67 in comparison to 20 observed deaths. Relative risk estimates of 1.36 and 1.44 were derived, and the 95% confidence limits of these estimates were used to derive the lifetime cancer risk. Because of uncertainties regarding occupational beryllium concentrations and exposure duration, unit risks were derived using two estimates each of concentration, fraction of lifetime exposed, and relative risk. The recommended value is the arithmetic mean of the eight derived unit risks. A low degree of confidence is placed in the unit risk because the quality of the available studies, which were conducted at single-dose levels or lacked control groups, is poor.

BHC (Hexachlorocyclohexane)

BHC (Hexachlorocyclohexane or HCH) is a man-made chemical that occurs in eight forms or isomers. The isomers alpha (α), beta (β), gamma (γ), and delta (δ) are all solids that were used primarily as pesticides. The γ isomer, also called lindane, was the active component in pesticide formulations. Commercial lindane contains a mixture of the isomers. The BHC insecticides were used on fruit, vegetable, and forest crops. Lindane is also used as a human medicine for head and body lice and scabies. Since the late 1970s, BHC has not been used as a pesticide in the United States, and manufacture of lindane stopped. Lindane is still imported for use in consumer products including dog dips, shampoos, lotions, sprays, and creams.

Although no longer used as a pesticide, former widespread use of BHC pesticides has left α , β , γ and δ isomers in the air, water and soil. In general, lindane is degraded poorly in the environment, but does biodegrade slowly in soil and aerated water.

Human exposure can occur through contact with contaminated air, water, or food. BHC is found in meat and milk as well as fruit and vegetables. In the body, BHC is absorbed rapidly from the digestive tract. In addition, lindane can absorb through the skin when used in lotions, creams, and shampoos.

Data on human exposure comes primarily from occupational studies. BHC overexposure can cause lung irritation, heart disorders, and blood disorders. Accidental and suicidal poisonings have caused death in some cases. Long-term exposure to high doses has caused convulsions, kidney disease, liver disease, and death in laboratory animals. BHC was removed from use as an insecticide because long-term exposure to the α , β , and γ isomers caused liver cancer in mice. EPA has classified α and γ BHC as Group B2-probable human carcinogens based on animal data.

The oral and inhalation slope factors for α -BHC, which are both equal to $6.3 \text{ (mg/kg-day)}^{-1}$, are based on the increased incidence of liver tumors in mice from dietary exposure. Relatively few animals were treated and the treatment time was not considered adequate for the development of spontaneous tumors. However, estimates of slope factors from other animal studies were similar and supportive of the slope factors from the primary study.

Carbazole

Carbazole is a synthetic organic chemical which is an important intermediate in the manufacture of dyes. It is also used to produce certain fluorescent materials and insecticides. Carbazole is insoluble in water and, therefore, probably relative immobile in the environment. It is resistant to biodegradation.

The toxicological properties of carbazole have not been extensively investigated. Depending on the route of exposure, high concentrations may cause irritation to the eyes, skin, respiratory tract, or gastrointestinal tract.

Carbazole has been found to be mutagenic and carcinogenic in animal studies. EPA has classified carbazole as a Group B2 probable human carcinogen based on evidence of carcinogenicity in animals. The provisional oral slope factor, $2 \times 10^{-2} \text{ (mg/kg-day)}^{-1}$ is derived from a 96-week mouse study in which dietary exposure to carbazole was associated with an increased incidence of liver tumors.

Chloroform

Chloroform, also known as trichloromethane, is a colorless liquid with a pleasant, non-irritating odor and a slightly sweet taste. Chloroform is used primarily to synthesize other chemicals. Most chloroform found in the environment comes from chemical manufacturing plants, pulp and paper mills, chlorinated drinking water supplies, and chlorination of waste water from sewage treatment plants. Chloroform is highly soluble in water, and it readily evaporates into air where it is ultimately degraded by photochemical reactions. Background levels of chloroform range from 0.02 to 0.05 ppb in air and 2-44 ppb in water.

The most likely source of exposure to chloroform is through drinking water and/or breathing air containing chloroform. It also can be absorbed through the skin. Inside the body, chloroform can be transported throughout the body, concentrating mainly in fat tissue, brain, liver, and kidney. In humans, chloroform has been found to adversely affect the central nervous system (CNS), liver, kidneys, digestive system, heart, and circulatory system after exposure through inhalation or ingestion. CNS effects associated with human exposure to chloroform include dizziness, vertigo, headache, and in some cases death. When used as an anesthetic in the past, chloroform caused irregular heartbeat and low blood pressure. Anesthetic use was discontinued because of liver and kidney damage. Exposure to very high levels of chloroform (8,000 to 10,000 ppm) likely will result in unconsciousness and death. Breathing high levels (900 ppm) for a short time may cause tiredness, dizziness, or headaches. Long-term exposure to low concentrations of chloroform also causes liver and kidney damage in humans and animals. Dermal contact with chloroform may cause sores. It is unclear whether chloroform affects reproduction or causes birth defects in humans. However, in animal studies, moderate amounts (300 ppm) of chloroform affected reproduction in mice and rats. Male mice had abnormal sperm while female rats and mice experienced miscarriages or had higher numbers of offspring with birth defects.

The oral RfD of 1×10^{-2} mg/kg-day was derived from a study involving beagle dogs who were administered chloroform in a toothpaste base in gelatin capsules. The critical effect identified in this study is fatty cyst formation in the liver. An uncertainty factor of 1000 was applied to the LOAEL to account for interspecies conversion, protection of sensitive human subpopulations and use of the LOAEL rather than a NOEL. The principal study was of chronic duration, used a fairly large number of dogs, and measured multiple endpoints; however only two treatment doses were used and no NOAEL was determined. Therefore, confidence in the study is rated medium. Confidence in the database is considered medium to low because several studies

support the choice of a LOAEL, but a NOAEL was not identified, therefore medium to low confidence in the RfD follows.

The provisional inhalation RfD for chloroform of 1.1×10^{-2} mg/kg-day was derived from a subchronic rat inhalation study in which liver necrosis was identified as a critical effect. An uncertainty factor of 300 was applied the NOAEL to account for protection of sensitive human subpopulations, interspecies extrapolation, and database limitations. Confidence in the database and the RfD is medium.

Although it is unknown whether long-term exposure contributes to the development of cancer in humans, liver and kidney tumors have been associated with oral exposure in mice and rats. Chloroform is classified as a Group B2, probable human carcinogen, by EPA based on animal studies. The oral slope factor for chloroform, 6.1×10^{-3} mg/kg-day⁻¹, is based on kidney tumors in male rats exposed to chloroform in their drinking water. The principal study was designed for detection and quantitation of effects at low doses, thus, large numbers of animals were treated and observed for their lifetime. The inhalation slope factor, 8.05×10^{-2} mg/kg-day⁻¹, is based on an inhalation unit risk of 2.3×10^{-5} µg/m³. The unit risk is derived from a gavage study on female mice in which an increased incidence of hepatocellular carcinomas was observed. Adequate numbers of animals were treated and observed in the principal study, and the risk estimate is supported by similar estimates from other animal studies.

Chromium

Chromium is a naturally occurring element used in the manufacture of steel and other alloys. Its compounds are used in refractory brick for the metallurgical industry, and in metal plating (chromium VI), the manufacture of pigments (chromium III and chromium VI), leather tanning (chromium III), and other processes. Exposure to chromium can result from inhalation of air containing chromium-bearing particles and ingestion of water or food contaminated with chromium. Chromium III is considered an essential nutrient that helps to maintain normal glucose, cholesterol, and fat metabolism. The minimum daily requirement of chromium for optimal health has not been established, but ingestion of 20 to 500 µg/day has been estimated to be safe and adequate.

The two major forms of chromium — chromium III and chromium VI — can be toxic at high levels, but chromium VI is more toxic than chromium III. Inhaling very high levels of chromium VI can damage and irritate the nose, lungs, stomach, and intestines. Individuals who are allergic to chromium also may experience asthma attacks after breathing high levels of either chromium III or VI. Long-term exposures to high or moderate levels of chromium VI cause

damage to the nose (bleeding, itching, sores) and lungs, and can increase the risk of non-cancer lung diseases. Minor to severe damage to the mucous membranes of the respiratory tract and to the skin have resulted from occupational exposure to as little as 0.1 mg/m³ chromium VI compounds. Chromium VI also may cause adverse effects in the kidney and liver. Ingestion of large amounts of chromium may result in upset stomachs and ulcers, convulsions, kidney and liver damage, and even death. It is not known whether chromium affects human reproduction or harms the fetus; however, mice that ingested large amounts of chromium had reproductive problems and offspring with birth defects. Skin contact with liquids or solids containing chromium VI may lead to skin ulcers, and some people also may experience allergic reactions, including severe redness and swelling. Chromium III does not cause these effects. The only effects observed in toxicological studies of chromium III were decreased liver and spleen weights in rats.

Oral RfDs have been developed by EPA for chromium III, insoluble salts, and chromium VI. The oral RfD for chromium III, 1.5 mg/kg-day, is based on a chronic rat feeding study in which rats were fed chromic oxide baked in bread at dietary levels of 0, 1, 2, or 5%, 5 days/week for 600 feedings. Confidence in the principal study used in deriving the RfD is considered low because of the lack of detail on study protocol and results. Low confidence in the database reflects the lack of high-dose supporting data. The overall confidence in the RfD is low, reflecting the study and database limitations as well as the lack of an observed effect level. The oral RfD for chromium VI, 3×10^{-3} mg/kg-day, is based on a 1-year drinking study during which rats were supplied with drinking water containing 0 to 11 ppm chromium for 1 year. The uncertainty factor of 500 accounts for interspecies extrapolation, intraspecies variability, and the less-than-lifetime exposure duration in the principal study. Confidence in this study is low because of the small number of animals tested, the small number of parameters measured, and the lack of toxic effects at the highest dose tested. Confidence in the database is low because the supporting studies are of equally low quality, and teratogenic and reproductive endpoints are not well documented. Consequently, confidence in the chromium (VI) RfD also is low.

A provisional inhalation reference concentration (RfC) for chromium VI of 4×10^{-6} mg/m³ is based on a NOAEL of 0.0004 mg/m³ for diffuse nasal symptoms from occupational exposure to chromic acid fumes. The NOAEL was divided by a factor of 100 for protection of sensitive human subpopulations and lack of completeness of the database. Confidence in the critical study is medium because the sample size was adequate and because nasal effects appear to be the most sensitive endpoint in humans. However, because the data for the supporting animal studies, which show respiratory effects from chromium, are inadequate with respect to

developmental and reproductive effects, confidence in both the database and the RfC are considered low.

Epidemiologic studies of chromate production facilities in the United States have identified an association between chromium exposure and lung cancer. The majority of these studies did not attempt to determine whether chromium III or chromium VI compounds were the etiologic agents. However, because only chromium VI compounds were carcinogenic in animal assays, the EPA has classified chromium VI as a Group A, human carcinogen. An inhalation unit risk for chromium VI of 0.012 ($\mu\text{g}/\text{m}^3$)-1 has been derived based on the incidence of lung cancer among occupationally exposed individuals in the United States and West Germany. These studies are supported by three additional studies of the chrome pigment industry in which an association between occupational chromium exposure (predominantly to chromium VI) and lung cancer was identified. The results of the principal and supporting studies used to establish the dose-response relationship for lung tumors are consistent across investigators and countries. However, there are uncertainties associated with several assumptions that were made in deriving the unit risk for chromium VI. The assumption that no less than one-seventh of total chromium exposure was chromium VI may lead to an underestimation of risk. The use of occupational data that may have underestimated worker exposure may result in an overestimation of risk. Further overestimation of risk may be due to the implicit assumption that the smoking habits of chromate workers were similar to those of the general white male population, because it is generally accepted that the proportion of smokers is higher for industrial workers than for the general population.

1,2-Dichloroethane (1,2-DCA)

1,2-DCA is a man-made liquid chemical used primarily in the synthesis of other solvents, particularly those that remove grease, glue, and dirt. In the past, it was also found in commercial and household cleaning agents. When released to surface soil or surface water, 1,2-DCA evaporates readily into air, where it is broken down by sunlight. In the subsurface, 1,2-DCA migrates in soil gas and in groundwater. It does not break down rapidly in soil, groundwater, and surface water.

Humans are exposed to 1,2-DCA primarily by breathing air containing its vapors or by drinking contaminated water. It can also enter the body through the skin. The lungs, heart, liver, and kidneys are the organs primarily affected in both humans and animals exposed to 1,2-DCA. Short-term exposure to 1,2-DCA in air may result in an increased susceptibility to infection and

liver, kidney, and/or blood disorders. Effects seen in animals after long-term exposure included liver, kidney, and/or heart disease, and death.

1,2-DCA has caused increased numbers of tumors in laboratory animals when administered in high doses in the diet or on the skin, and is classified as a Group B2 probable human carcinogen. EPA's oral and inhalation slope factors, both equal to 9.1×10^{-2} , are based on a significantly increased incidence of circulatory system hemangiosarcomas reported in rats that were orally exposed to 1,2 DCA by gavage in corn oil. Adequate numbers of animals were treated and observed for most of their expected lifespan, and the incidence of hemangiosarcoma was dose-related.

Di(2-ethylhexyl)phthalate [DEHP; Bis(2-ethylhexyl)phthalate (BEHP)]

DEHP and other phthalic acid esters (PAEs) are used as plasticizers which impart flexibility to plastics and which may comprise as much as 50 % by weight of the final product. Virtually all PAEs produced are used to manufacture other products. Approximately 98% of the United States supply is incorporated into various plastic products; most of these are ultimately deposited at landfill sites. The remaining 2% is distributed among other products as pesticides, cosmetics, and paints.

DEHP is a colorless liquid with low water solubility, high solubility in oils and organic solvents, and low volatility. DEHP and other PAEs are ubiquitous in the environment. Sources include releases from industrial facilities and landfills, leaching and volatilization from PAE-containing products, and incomplete burning of plastics. PAEs released to air tend to adsorb to airborne organic matter which then deposits on land and water surfaces. DEHP released to water tends to adsorb to soil and sediment. When released to soil it usually does not migrate far, though the presence of organic solvents or humic acids in the soil can increase mobility. DEHP biodegrades slowly and can be persistent in the environment. It is taken up by plants and animals, and bioconcentration has been reported in fish and shellfish; however, because it is metabolized, biomagnification through the food chain is unlikely.

Human exposure to PAEs can occur through food consumption, use of PAE-containing products, and contact with contaminated water and soil. Food consumption is the major route of exposure for the general public. Fish and other seafood are frequently contaminated, especially in industrialized areas. Additionally, PAEs can leach into foods from plastic packaging, particularly foods with a high fat content. Exposure to PAEs in ambient air is generally low, however, volatilization from plastics in flooring, furniture, and other products may result in higher indoor air concentrations. Skin contact with PAEs in products such as cosmetics and

insect repellents would result in higher exposure. Humans who receive blood transfusions or hemodialysis therapy may also be exposed to PAEs leached from tubing and fluid storage bags used in medical practice.

There is very little information on adsorption of PAEs by humans. However, limited human data and animal studies indicate that they are absorbed to some extent by the oral, inhalation, and dermal routes. Studies indicate that PAEs and their metabolites are found primarily in adipose tissue, the liver, kidney, and intestines, but accumulation and retention of these compounds is minimal. PAEs and their metabolites are eliminated through the urine, feces, and bile.

Data on the effects of DEHP and other PAEs in humans, particularly for oral exposure, are limited. The low levels to which humans are routinely exposed do not appear to cause adverse health effects. Animal studies indicate that the toxicity of PAEs is low and generally tends to be inversely related to the molecular weight of the compound. Subchronic and chronic toxicity effects include decreased body weight, and increased kidney and liver weights. Target organs of PAEs include the testes and the liver, although adverse effects to these organs have not been observed with all PAEs. Testicular atrophy has been associated with exposure to DEHP. Hepatic effects commonly reported include enlargement of the liver, effects on the mitochondria, and decreased succinate dehydrogenase activity. Reproductive effects have been reported following exposure during mating and gestation. DEHP has been shown to decrease fertility and reproductive performance in mice.

The chronic oral RfD for DEHP, 0.02 mg/kg-day, is based on increased liver weight reported in guinea pigs following subchronic to chronic exposure. The LOAEL was adjusted by a factor of 1000 to account for less-than-lifetime exposure in the critical study, interspecies extrapolation, and protection of sensitive human subpopulations. Confidence in the RfD is medium.

A provisional inhalation RfD for DEHP, 2.9×10^{-3} mg/kg-day, is based on lung effects seen in rats after short-term inhalation exposure. The NOAEL from the study was adjusted by an uncertainty factor of 1000 to account for extrapolation from a less-than-subchronic study, interspecies variability, human variability, and database deficiencies. Confidence in the provisional inhalation RfD is medium to low, reflecting medium to low confidence in the database.

There is no conclusive evidence that DEHP is a human carcinogen; however, it has been shown to be carcinogenic in animal studies, and EPA has classified DEHP as a Group B2 probably human carcinogen. The oral slope factor of 1.4×10^{-2} (mg/kg-day)⁻¹ is based on data

from a 2-year carcinogenesis bioassay performed by the National Toxicology Program in which dietary exposure to DEHP was found to cause an increased incidence of hepatocellular carcinomas in rats and mice. An adequate number of animals was observed, and a statistically significant and dose-dependent increase in the incidence of liver tumors was seen. However, the slope factor calculations used standard food consumption rates because of potential variability in the measured rates from possible feed scattering.

2,4-Dimethylphenol

2,4-Dimethylphenol is one of six isomers of dimethylphenol. All dimethylphenols are white crystalline solids that are only slightly soluble in water. 2,4-Dimethylphenol is not commercially produced in the United States, except as a part of mixed dimethylphenols. Dimethylphenols are used in the manufacture of antioxidants, pharmaceuticals, plastics, resins, rubber, disinfectants, solvents, pesticides, and dyes.

Dimethylphenols released to the air are chemically degraded. Biodegradation may occur in surface water. Dimethylphenols tend to adsorb to organic matter in soils, where they are subject to biodegradation. In sandy soil, 2,4-dimethylphenol can leach to groundwater. Although dimethylphenol is found in tobacco smoke and auto exhaust, it is not generally detected in urban or rural ambient air. Dimethylphenol is found in wastewater from water treatment plants, textile plants, and petroleum industries. With one exception, dimethylphenol has not been detected in United States drinking water supplies.

There are no data available on the human health effects of 2,4-dimethylphenol, and animal data is limited. One study detected nervous system effects and blood chemistry changes when mice were force fed 2,4-dimethylphenol for 90 days. The chronic oral RfD for 2,4-dimethylphenol, 0.02 mg/kg-day, was derived from the NOAEL from this study using an uncertainty factor of 3000 to account for intraspecies variability, interspecies variability, and the lack of supporting studies, chronic toxicity data, and reproductive/developmental toxicity data. Although confidence in the principal study is medium, the lack of chronic and reproductive information leads to low confidence in the database and the RfD.

There is no evidence of carcinogenicity of 2,4-dimethylphenol in humans. However, there is limited evidence that 2,4-dimethylphenol can act to increase the potency of a known carcinogen when painted on mouse skin. EPA has placed 2,4-dimethylphenol in Group D, not classifiable due to inadequate evidence of carcinogenicity in animals.

Ethylbenzene

Ethylbenzene is a colorless liquid with a gasoline-like odor. Ethylbenzene occurs naturally in coal tar and petroleum, and it is found in many synthetic products, including paints, inks, and insecticides. Gasoline contains roughly 2% ethylbenzene by weight.

Ethylbenzene evaporates easily into the air from soil or water. People living in urban areas or near factories or highways may be exposed to ethylbenzene in the air. Indoor air, on average, contains more ethylbenzene than outside air due to buildup from household products such as cleaning products and paints. Tobacco smoke also contains ethylbenzene. Ethylbenzene can potentially enter the body through inhalation of vapors, through dermal contact with gasoline, paint vapors, or glue vapors, or through ingestion of food or water containing its residues.

Humans exposed to high levels of ethylbenzene have exhibited signs of dizziness and lethargy. Low-level exposure has been associated with eye and throat irritation. No deaths have been reported in humans exposed to ethylbenzene. There are no data on long-term health effects in humans exposed to ethylbenzene.

In animals, short-term exposure to high concentrations of ethylbenzene in air is associated with liver, kidney, and nervous system damage. Birth defects have occurred in the offspring of animals exposed to ethylbenzene during pregnancy. Developmental toxicity is the critical or most sensitive effect of ethylbenzene inhalation. The inhalation RfD for ethylbenzene, 0.29 mg/kg-day, is based on developmental effects reported in the offspring of rats exposed by inhalation during gestation. The NOAEL was adjusted by an uncertainty factor of 300 to account for the absence of multigenerational reproductive and chronic studies, interspecies conversion, and protection of sensitive human subpopulations. Confidence in the RfD is low because the principal study did not include higher exposure levels that might have revealed maternal toxicity and developmental effects, and because the database lacks chronic and multigenerational developmental studies.

Studies on the effects of oral exposure to ethylbenzene are limited. Liver and kidney toxicity were reported in rats who were administered ethylbenzene by gavage for 6 months. The oral RfD was derived from the NOAEL using an uncertainty factor of 1000 to account for intraspecies variability, interspecies conversion, and extrapolation from subchronic data. Confidence in the study is low because rats of only one sex were tested and the exposure duration was less than chronic. There are no other oral toxicity data in the database; consequently, confidence in the oral RfD is low.

There is no evidence that ethylbenzene is carcinogenic in humans. One long-term study showed increased tumors in rats treated with ethylbenzene, but the study was flawed. EPA has placed ethylbenzene in Group D, not classified for carcinogenicity, because of limited laboratory data and lack of adequate human data.

Lead

Lead is a naturally occurring metal that is used in the manufacture of storage batteries and the production of ammunition and miscellaneous metal products (e.g., sheet lead, solder, and pipes). Other uses for lead are in the manufacturing of lead compounds including gasoline additives and pigments. In recent years, the quantity of lead used in paints, gasoline additives, ammunition, and solder has been reduced because of lead's toxic effects.

Lead can enter the body via ingestion and inhalation. Although it may also enter the body through the skin, dermal absorption of inorganic lead compounds is less significant than absorption through other routes. Children appear to be the segment of the population at greatest risk from toxic effects of lead. Children absorb about 50 percent of ingested lead while adults absorb only 5 to 15 percent. Initially, lead travels in the blood to the soft tissues (heart, liver, kidney, brain, etc.), then it gradually redistributes to the bones and teeth where it tends to remain. Children retain a larger fraction of the absorbed lead, about 57 percent, in the blood and soft tissue compartments, whereas in adults roughly 95 percent of the total body burden of lead is found in bones and teeth.

The most serious effects associated with markedly elevated blood lead levels include neurotoxic effects such as irreversible brain damage. Health effects are the same for inhaled and ingested lead. At blood lead levels of 40 to 100 micrograms per deciliter ($\mu\text{g}/\text{dL}$), children have exhibited nerve damage, permanent mental retardation, colic, anemia, brain damage, and death. Chronic kidney disease is also evident at these levels. For most adults, such damage does not occur until blood lead levels exceed 100 to 120 $\mu\text{g}/\text{dL}$. At lower levels, lead can cause a variety of subtle neurological effects, especially in small children. Blood lead levels as low as 10 $\mu\text{g}/\text{dL}$ have been associated with lower intelligence quotient (IQ) scores and cognitive deficits in children. The Center for Disease Control (CDC) regards 10 $\mu\text{g}/\text{dL}$ as a level of concern for blood lead based on the evidence of adverse health effects at that level and above.

No RfD has been established for lead because no thresholds have been demonstrated for the most sensitive effects in children. Instead, EPA advocates the use of its Integrated Exposure/Uptake Biokinetic (IEUBK) Model to predict childhood blood lead levels expected to

result from multimedia exposures. The default target blood lead level used by the model, 10 µg/dL, is the same as the level of concern established by CDC.

None of the epidemiology studies conducted to explore the relationship between lead exposure and increased cancer risk found any relationship. However, animal studies have shown increased kidney cancer and central nervous system (CNS) cancer in rats and mice. The EPA has classified lead as a Group B2 probable human carcinogen. However, EPA has not established a slope factor for lead, because there are many uncertainties involved in quantifying its cancer risks.

Manganese

Manganese, a naturally occurring element, is usually found combined with other elements such as oxygen, sulfur, and chlorine. Manganese is used in the steel industry; metallurgical processing; the production of dry cell batteries; as a component of some ceramics, pesticides, and fertilizers; and in nutritional supplements. Manganese is an essential element for humans and is a cofactor for a number of enzymatic reactions. The United States National Research Council recommends a provisional daily dietary intake of manganese of 2.0 to 5.0 gram for adults.

Manganese enters the air primarily through the burning of fossil fuels and emissions from factories where metallic manganese is produced from ores. It can be released to water and soil from factories or spills and leaks at hazardous waste sites. Some manganese compounds are soluble in water, and low levels of these compounds are normally present in lakes, streams, and the ocean. Manganese does not break down in the environment, but can change from one form to another.

Because manganese occurs naturally in the environment, humans are exposed to low levels of manganese in water, air, soil, and food. Food is the primary source of manganese for most people. There are few reports of negative health effects in humans exposed to manganese in drinking water or food. Laboratory studies of animals exposed to manganese in water or food have demonstrated adverse health effects, including changes in brain chemical levels, low birth weights in rats when mothers were exposed during pregnancy, slower than usual testes development, decreased body weight gain, and weakness and muscle rigidity in monkeys.

Inhalation of manganese dust at mining or ore processing plants and inhalation of welding fumes may be significant sources of occupational exposure. Following inhalation of manganese dust, absorption into the bloodstream occurs only if particles are sufficiently small to be able to penetrate deeply into the lungs. Long-term inhalation of manganese dust may result in

a neurological disorder characterized by irritability, difficulty in walking, and speech disturbances. Impotence and loss of libido also have been reported in men exposed to high levels of manganese in air. Short-term inhalation exposure has been associated with respiratory disease.

Several studies were used to derive the oral RfD for dietary manganese, 1.4×10^{-1} mg/kg-day. While those studies report average levels of manganese in various diets, no quantitative information is available to indicate toxic levels of manganese in the diet. Because humans maintain homeostatic control of manganese uptake and elimination, there is a wide range of dietary intakes considered to be safe. The determination of a single acceptable intake of manganese in the diet does not reflect the considerable variability in its adsorption and elimination by humans, which are influenced by both environmental and biological factors. Confidence in the database and in the dietary RfD for manganese is medium.

For assessments of exposure to manganese in soil or drinking water, EPA recommends that the oral RfD should be adjusted by subtracting the amount of manganese that would be consumed in a normal diet (assuming 5 mg/day for a 70 kg adult or 0.071 mg/kg-day) and dividing it by an uncertainty factor of 3. The resulting oral RfD for soil or water is 0.047 mg/kg-day.

The inhalation RfC for manganese, 0.00005 mg/m^3 , is based on a study in which impairment of neurobehavioral function in occupationally exposed individuals was identified as the critical effect. The principal study included 92 male workers exposed to manganese dioxide dust in a Belgian alkaline battery plant for an average of 5.3 years (range: 0.2 to 17.7 years) and a control group of 101 male workers. Confidence in the study and the database is considered medium. The principal study did not identify a NOAEL for neurobehavioral effects, nor did it measure particle size directly or provide information on particle size distribution. These limitations are mitigated by the fact that the principal study found similar indications of neurobehavioral dysfunction, and these findings were consistent with the results of other human studies. In all of the principal and supporting studies, the exposure duration was relatively limited and the workers were relatively young. These temporal limitations raise concerns that longer exposure durations and/or interactions with aging might result in the detection of effects at lower concentrations. There also is insufficient information on the developmental and reproductive effects of manganese inhalation. Medium confidence in the inhalation RfC follows medium confidence in the principal studies and the database.

There are no human carcinogenicity data for manganese exposure. The data from some animal studies have shown increases in tumors in a small number of animals at high doses of

manganese, but the data are inadequate to judge whether manganese can cause cancer. EPA has placed manganese in Group D, not classifiable as to human carcinogenicity.

Methylene Chloride (Dichloromethane, MC)

MC is a man-made liquid chemical that is widely used as an industrial solvent and as a paint stripper. Because MC evaporates easily, most MC released into the environment will end up in the air. Small amounts of MC may be found in some drinking water. Absorption into the body occurs readily following exposure by breathing vapors or accidental ingestion.

Occupational worker exposure to MC in air has resulted in drowsiness, fatigue, lack of appetite, and light-headedness. Other effects include impaired reaction time and coordination, numbness or tingling of fingers and toes, and intoxication.

Oral and inhalation RfDs have been derived for MC. The oral RfD, 0.06 mg/kg-day, is based on a 2-year rat drinking water study in which liver toxicity was identified as the critical effect. The NOAEL was divided by an uncertainty factor of 100 to account for interspecies extrapolation and intraspecies variability. Confidence in the principal study is considered high because a large number of animals of both sexes were tested in four dose groups, with a large number of controls. Many effects were monitored and a dose-related increase in severity was observed. The database is rated medium to low because only a few studies support the NOAEL. Medium confidence in the oral RfD follows. The provisional inhalation RfD, 0.86 mg/kg-day, is based on a two year intermittent inhalation study in rats in which liver toxicity was identified as the critical effect.

Chronic exposure of laboratory animals to high concentrations of MC by inhalation resulted in an increased incidence of liver and lung cancer in mice and rats. MC has not been shown to cause cancer in occupationally exposed humans. Based on results from animal studies, MC is classified as a Group B2, probable human carcinogen. Oral and inhalation slope factors also have been derived for MC.

The oral slope factor for MC, $7.5 \times 10^{-3} \text{ (mg/kg-day)}^{-1}$, is based on hepatocellular adenomas or carcinomas in a NTP study and hepatocellular cancer and neoplastic nodules in a National Coffee Association study. The slope factor is the arithmetic mean of slope factors derived from these two studies. Adequate numbers of animals were used in both studies. Risk estimates were based on the more sensitive sex in each study. The two risk estimates were within a factor of 5.

The inhalation slope factor for MC, $1.6 \times 10^{-3} \text{ (mg/kg-day)}^{-1}$, is based on a unit risk of $4.7 \times 10^{-7} \mu\text{g/m}^3$. The unit risk is derived from an inhalation study involving female mice in

which an increased incidence of combined adenomas and carcinomas was identified. Adequate numbers of animals were observed and tumor incidence was significantly increased in a dose-dependent fashion. Uncertainty still remains in the estimates of internal dose generated by the model. Important uncertainties remain regarding the pharmacokinetics, pharmacodynamics, and mechanisms of carcinogenicity for MC.

2-Methylphenol (ortho-Cresol; o-Cresol)

One of the three isomers of methylphenols (cresols) is 2-methylphenol. Cresols are natural components of crude oil and coal tar, from which they are recovered as fractional distillates. Synthetic processes have been developed to produce the various cresol isomers. Much of the 2-methylphenol produced is used directly as either a solvent or disinfectant. It is also used as a chemical intermediate for a variety of products including other solvents, fragrance enhancers, antioxidants, dyes, resins, and certain pesticides.

Cresols are also widely distributed natural compounds that are formed as metabolites of microbial activity. They are present in many foods and in the urine of humans and other mammals. Cresols are also combustion products which can be released from natural fires as well as anthropogenic sources.

Available information indicates that the most likely route of exposure to cresols for the general population is probably inhalation. Common sources of cresol in air include automobile exhaust, incinerator emissions, and furnace emissions. High levels of cresol exposure can also result from inhalation of cigarette smoke. Small amounts of cresols may be ingested in food and water. Some people may also be exposed by direct contact with cresol-containing mixtures. Cresols are absorbed across the epithelium of the respiratory and gastrointestinal tracts, and through intact skin or open wounds.

Exposures to high levels of cresols cause effects similar to those observed or phenol including irritation, corrosion, hemorrhages, cytoplasmic destruction to the gastrointestinal tract, kidney tubule damage, nodular pneumonia, and hepatocellular necrosis. The effects of long-term exposures at lower levels have not been studied in humans. The chronic oral RfD for 2-methylphenol, 0.05 mg/kg-day, is derived from a 90-day oral rat study which reported decreased body weight and neurological effects as the critical effect. The NOAEL was adjusted by an uncertainty factor of 1000 to account for interspecies conversion, intraspecies variability, and subchronic-to-chronic extrapolation. Confidence in the critical study is high because toxicological endpoints included both general toxicity and neurotoxicity. The supporting

subchronic studies are adequate, however, because of the lack of chronic studies and reproductive studies, the overall database and the RfD are given a medium confidence rating.

There is limited evidence that cresols may cause cancer or enhance the ability of carcinogenic chemicals to induce cancers in animals. 2-Methylphenol has been classified by EPA as a Group C possible human carcinogen.

Pentachlorophenol (PCP)

PCP is one of the most widely used pesticides in the United States. The principal use of PCP is for wood preservation, with 80 percent of the domestic use accounted for in the treatment of utility poles. PCP does not occur naturally. Its presence in the environment is the result of emissions from factories, hazardous waste sites, and other sources. In addition, PCP that was used industrially often contains other hazardous substances as contaminants, including dioxins.

PCP is a non-flammable solid that does not evaporate easily. It exists in two forms, one that dissolves easily in water and one that dissolves in oil. Humans may be exposed to PCP in their workplaces. The general public can be exposed to low levels in air, food, and drinking water. PCP can easily enter the body through the lungs as an air pollutant, through the digestive tract as a contaminant of water or food, or through the skin. In general, the most significant routes of exposure are through inhalation and dermal absorption.

Brief human exposure to high levels of PCP may result in adverse effects to organ systems, including the liver, kidneys, skin, blood, lungs, central nervous system, and gastrointestinal tract. Such poisoning may also result in death. Long-term exposure to lower levels of PCP can cause damage to the liver, the blood, and the central nervous system.

Animals that have been exposed to PCP in scientific experiments have also shown adverse effects in many organ systems, similar to the effects seen in humans. The critical or most sensitive noncarcinogenic effect of exposure to PCP seen in animal studies is pigmentation of the liver and kidneys. Birth defects have also been found in animals, but the observed fetotoxicity may have been a reflection of maternal toxicity.

The chronic oral RfD for PCP, 0.03 mg/kg-day, is based on liver and kidney effects reported in a chronic oral rat study. The NOAEL was adjusted by an uncertainty factor of 100 to account for intraspecies and interspecies variability. Confidence in the chosen study is high because it involved a moderate number of animals at three dose levels and included a comprehensive analysis of parameters and a reproductive study. However, although subchronic studies provide supporting evidence, there are no other chronic studies in the database. Therefore, confidence in the RfD is rated only medium.

Increased risk of cancer, primarily of the liver, kidney and spleen, has been demonstrated in animals exposed to PCP. Epidemiological studies have resulted in no convincing evidence that PCP produces cancer in humans. Based on the animal studies and lack of supporting human data, EPA has classified PCP as a Group B2 probable human carcinogen. The oral slope factor, $0.12 \text{ (mg/kg-day)}^{-1}$, was derived from a mouse study which reported an increased incidence of several types of liver tumors from dietary exposure to PCP. Hemangiosarcoma, the tumor of greatest concern, occurred only in female mice. To give preference to hemangiosarcomas, and because of significant early loss in some male groups, only the female mouse data were used to calculate the slope factor.

Phenol

Although phenol is a commercially produced synthetic organic chemical, it also occurs naturally in animal wastes and decomposing organic material. The largest single use of phenol is as an intermediate in the production of phenolic resins. It is also used as an intermediate in the manufacture of epoxy and nylon fibers, as a slimicide, as a disinfectant, and in medicinal preparations.

Phenol has a high water solubility, moderately low vapor pressure, and a low Henry's Law Constant. Following release to the environment, phenol is expected to be associated with the water column and to have high mobility in soil. Biodegradation occurs rapidly in soil and water, except when concentrations are sufficiently high to destroy degrading microbial populations.

Exposure to low concentrations may occur through the use of a number of phenol-containing medicinal products including ointments, ear and nose drops, mouthwashes, gargles, throat lozenges, analgesic rubs, and antiseptic lotions. Phenol may also be present in drinking water and certain foods. Phenol is readily absorbed by the oral, inhalation, and dermal exposure routes. The skin represents a major route of entry for phenol vapor, liquid, and solid. Once in the body, phenol is rapidly metabolized and eliminated in the urine.

Most information regarding health effects of phenol exposure in humans is from acute effects of oral and dermal exposure to high concentrations. Phenol is destructive to the body tissues, resulting in areas of necrosis following dermal or ingestion exposure. Effects reported in humans following dermal exposure include liver damage, diarrhea, dark urine, and hemolytic anemia. Animals exposed to high concentrations of phenol have given birth to offspring with low birth weight and birth defects, but the effects on human reproduction are unknown. The oral RfD for phenol, 0.6 mg/kg-day , is based on a rat developmental study which reported reduced

fetal body weight after oral exposure by gavage during gestation. The NOAEL was adjusted by an uncertainty factor of 100 to account for interspecies extrapolation and protection of sensitive human populations. Confidence in the study is low because of the gavage nature of the dose administration. The database is rated medium because it includes supporting subchronic, chronic, and developmental studies. Confidence in the RfD is low to medium.

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans (Dioxins/Furans)

Polychlorinated dibenzodioxins and polychlorinated dibenzofurans (dioxins/furans) are two classes of related chemicals. There are 75 different forms of dioxin and 135 forms of furan. Most studies of dioxins/furans focus on the most toxic member of this family of chemicals, 2,3,7,8-tetrachlorodibenzodioxin (TCDD), which is commonly (and inaccurately) called dioxin.

Neither dioxins nor furans are known to occur naturally, nor were they deliberately produced or released to the environment. Rather, they are unwanted trace contaminants that were formed during the manufacture or burning of certain chlorinated chemicals. These compounds have been found in chlorinated pesticides and other chlorinated chemicals, in automobile exhaust, and in the flue gases of municipal and industrial waste incinerators.

Though 2,3,7,8-TCDD is susceptible to photodecomposition, it is generally resistant to other degradation processes. Dioxins and furans may persist in the environment for a long time. These chemicals have extremely low vapor pressures, extremely low water solubilities, and a strong tendency to adsorb to soil or sediment particles. Crops grown in contaminated soil may take up 2,3,7,8-TCDD in their roots. 2,3,7,8-TCDD bioconcentrates in some aquatic organisms and may bioaccumulate through the food chain.

Workers involved in the production or use of chlorinated pesticides can be exposed to 2,3,7,8-TCDD, as can workers at municipal and industrial incinerators and hazardous waste sites. The general public can be exposed to dioxins and furans by direct contact with contaminated soil or by consuming contaminated fish, meat, milk, or root vegetables. For populations living near waste incinerators, inhalation of small particles of contaminated fly ash, could be a major source of exposure. Exposures from drinking water are probably negligible. Dioxins have been detected in human breast milk, and this is the major source of exposure for breast-fed babies.

In humans, overexposure to 2,3,7,8-TCDD has caused chloracne, a severe skin lesion which can be very disfiguring and which often lasts for years after exposure. There is limited evidence to suggest the 2,3,7,8-TCDD causes liver damage, loss of appetite and weight loss and digestive disorders in humans. Animal studies have shown many different adverse effects from

2,3,7,8-TCDD exposure. The severity and type of adverse effect varies with species. Animal studies have demonstrated severe liver damage, severe weight loss followed by death, toxicity to the immune system, spontaneous abortions, and malformations in offspring whose mothers were exposed to the chemical during pregnancy. In addition, 2,3,7,8-TCDD has been demonstrated to cause cancer in rats and mice. EPA has classified 2,3,7,8-TCDD as a Group B2 probable human carcinogens. Oral and inhalations slope factors have been derived, both equal to 1.5×10^5 (mg/kg-day)⁻¹, based on an increased incidence of respiratory system and liver cancers observed in rats who were exposed to 2,3,7,8-TCDD in their diet.

Because it is the most studied, 2,3,7,8-TCDD is often used as the reference chemical against which the relative toxicities of the other dioxins and furans are measured. For risk assessment purposes, the measured concentrations of the other dioxins and furans are converted to equivalent concentrations of 2,3,7,8-TCDD using toxicity equivalence factors (TEFs). The dioxin and furan equivalent concentrations are then totaled and evaluated as if they were the single chemical 2,3,7,8-TCDD.

Polynuclear Aromatic Hydrocarbons (PAHs)

PAHs contain only carbon and hydrogen and consist of two or more fused benzene rings in linear, angular, or cluster arrangements. PAHs are formed during the incomplete burning of fossil fuel, garbage, or any organic matter. PAHs produced by burning may be carried into the air on dust particles and distributed into water and soil. In general, PAHs do not evaporate easily and do not dissolve in water.

Exposure to PAHs may occur by inhaling airborne particles, drinking water, or accidentally ingesting soil or dust containing PAHs. In addition, smoking tobacco or eating charcoal-broiled food are common routes of exposure to PAHs.

Some PAHs are known carcinogens, and potential health effects caused by PAHs are usually discussed in terms of an individual PAH compound's carcinogenic or noncarcinogenic effects. Little attention has been paid to noncarcinogenic effects of PAHs. Rapidly growing tissues, such as the intestinal lining, bone marrow, lymphoid organs, blood cells, and testes seem to be especially susceptible targets to noncarcinogenic effects. Concentrations of 150 mg/kg or more administered to laboratory animals have been shown to inhibit body growth.

The oral RfD for acenaphthene, 0.06 mg/kg-day is based on a subchronic oral mouse study in which hepatotoxicity was reported as the critical effect. The uncertainty factor of 3000 accounts for use of a subchronic study, lack of reproductive/developmental data, interspecies extrapolation, and intraspecies variability. Confidence in the RfD is low because the observed

effects in the critical study were considered adaptive, and because the overall database lacks chronic and reproductive/developmental studies.

The provisional oral RfD for naphthalene, 0.02 mg/kg-day, is based on a subchronic oral rat study. The NOEL was adjusted by an uncertainty factor of 1000 to account for use of a subchronic study, interspecies extrapolation, and protection of sensitive human subpopulations.

Exposure to benzo(a)pyrene (B(a)P) and other carcinogenic PAHs can cause cancer at the point of exposure. When exposed to high levels of B(a)P in air animals develop lung tumors; when exposed via the dietary route they develop stomach tumors; and when B(a)P is painted on skin, animals develop skin tumors. Benzo(a)pyrene and six other PAHs have been classified by EPA as Group B2 probable human carcinogens. The other Group B2 carcinogenic PAHs are: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)-anthracene, and indeno(1,2,3-cd)pyrene. Only B(a)P has been assigned slope factors by EPA.

The oral SF for B(a)P, 7.3 mg/kg-day, is based on the geometric mean of four slope factors derived using differing modelling procedures from two different studies of mice and rats in which the incidence of cancer of the forestomach was increased by dietary exposures. The range of slope factors calculated was 4.5 to 11.7 (mg/kg-day)⁻¹. The data used are considered to be less than optimal, but acceptable.

Currently, an EPA-verified inhalation SF is not available. The recommended interim inhalation SF for B(a)P, (3.1 mg/kg-day)⁻¹, was derived from a hamster inhalation study and is based on the increased incidence of respiratory tract tumors.

In the past, other Group B2 carcinogenic PAHs were assumed to be equipotent to B(a)P; however, it has been shown in animal studies that some are less carcinogenic than B(a)P. EPA has recently adopted relative potency factors (RPFs) that account for differences in the carcinogenic potencies of individual PAHs relative to that of B(a)P (EPA 1993). For risk assessment purposes, the SF for each carcinogenic PAH has been estimated by combining its RPF with the SF of B(a)P.

RfDs and SFs for dermal exposure to other chemicals are routinely extrapolated from oral-route values; however, because PAHs cause cancer at the point of contact, it is considered inappropriate to use the oral SFs of PAHs to evaluate skin cancer risks from direct dermal exposure.

Thallium

Thallium is a naturally occurring element that is widely distributed in trace amounts in the earth's crust. It is usually found combined with other elements (primarily oxygen, sulfur, and

halogens) in inorganic compounds. Thallium is used mainly in the semiconductor industry for the production of switches and closures. It is also used in the manufacture of specialty glasses and for certain medical procedures. Thallium was once widely used as a pesticide for rodents and insects, but that use was banned by the EPA in 1972.

The major sources of thallium releases to the environment are emissions from coal burning or smelting operations. Thallium compounds are generally soluble in water, and the element is found in water mainly as the monovalent ion (Tl^+). Thallium tends to be sorbed to soils and sediments and bioaccumulates in aquatic plants, invertebrates, and fish. Terrestrial plants can also take up thallium from the soil.

Humans may be exposed to thallium by ingestion, inhalation, or dermal absorption. The main route of exposure for the general population is ingestion of thallium-containing foods, especially home-grown fruits and vegetables. Cigarette smoking is another common source of exposure. Inhalation of contaminated air may be a significant route of exposure for people who live or work near emission sources such as power plants or smelters.

Most thallium that is ingested is absorbed through the gastrointestinal tract and rapidly distributed to various parts of the body, especially the kidney and liver. Thallium is slowly eliminated in the urine and feces; its half-life within the body is approximately three days. Ingestion of large amounts over a short period can affect the liver and kidneys and the nervous, respiratory, and cardiovascular systems. Animal studies indicate that high doses damaged the nervous and cardiovascular systems and that lower doses over a longer period caused damage to the male reproductive system. Reproductive effects have not been reported in humans.

Oral studies in humans suggest that the liver is susceptible to thallium toxicity; necrosis, fatty changes, and altered serum enzyme levels have been reported. EPA has identified increased levels of serum glutamic oxaloacetic transaminase (SGOT) and lactate dehydrogenase (LDH) as the critical effect for deriving oral RfDs for several thallium compounds, including thallium acetate, carbonate, chloride, nitrite, and sulfate. The RfDs for all of these compounds are all based on a subchronic study in which rats that had been exposed by gavage to thallium sulfate in water showed increased levels of SGOT and LDH, and other effects. The RfD for thallium sulfate, 8×10^{-5} mg/kg-day, was obtained by multiplying the NOAEL from the critical study by an uncertainty factor of 3000 to account for extrapolation from subchronic to chronic, interspecies extrapolation, interspecies variability, and lack of reproductive and chronic toxicity data. (RfDs for the other compounds were obtained similarly, with an additional adjustment to account for molecular weight differences.) Confidence in the critical study is low because of uncertainties in

the results, and confidence in the database is low because it includes just one subchronic study and some anecdotal human data. Low confidence in the RfD follows.

There is no evidence that thallium causes cancer in humans or animals. The EPA has placed thallium in Group D (not classifiable as to carcinogenicity in humans).

Toluene

Toluene is used as a solvent in the production of a variety of products and as a constituent in the formulation of gasoline and aviation fuels. Toluene can enter and affect the body if it is inhaled, comes in contact with the eyes or skin, or is swallowed.

Inhalation of toluene can cause many central nervous system effects in humans and animals. Overexposure to toluene may cause fatigue, weakness, confusion, headache, dizziness, drowsiness, and irritation of the eyes, respiratory tract, and skin. These symptoms have been reported in association with occupational exposure to airborne concentrations of toluene ranging from 50 ppm (189 mg/m³) to 1,500 ppm (5,660 mg/m³). Symptoms generally increase in severity with increased exposures.

The inhalation RfD for toluene, 0.11 mg/kg-day, is derived from a human occupational study which reported neurological effects as the critical effect and a chronic inhalation rat study which reported respiratory irritation at about the same concentrations. The LOAEL from the occupational study was divided by an uncertainty factor of 300 to account for intraspecies variability, use of the LOAEL, and database deficiencies including small cohort size and a paucity of exposure data. Confidence in the principal studies is medium because of the deficiencies in the occupational study and because neither study established a NOAEL. Though there are a number of chronic animal studies that support the principal studies, long-term data in humans are not available. Therefore, the database and the RfD are given a medium confidence rating.

Studies on the effects of oral exposure to toluene are limited. The chronic oral RfD, 0.2 mg/kg-day, is derived from a 13-week rat gavage study in which the most sensitive or critical effect was increased liver and kidney weight. The uncertainty factor of 1000 was applied to the NOAEL to account for interspecies conversion, intraspecies variability, subchronic-to-chronic extrapolation, and limited reproductive and developmental toxicity data. While confidence in the principal study is high, the database is given only a medium confidence rating because of the lack of chronic and reproductive studies. Medium confidence in the RfD follows.

Toluene does not appear to cause cancer in animals or humans. No increased risk of cancer was detected in studies of occupationally exposed men. Similarly, toluene did not cause

cancer in rats and mice exposed via inhalation. EPA has placed toluene in Group D, not classifiable as to human carcinogenicity.

Trichloroethene (TCE)

TCE is a man-made chemical widely used as a cleaning agent and solvent in degreasing operations. The automotive and metals industries are the primary users of TCE. In the past, TCE was used as an anesthetic, but that use was discontinued when it was found to cause irregular heartbeats. Most TCE released into surface water or surficial soil will rapidly evaporate into the air. In the subsurface, TCE is moderately to highly mobile and can migrate to groundwater. TCE biodegrades very slowly in subsurface soils and groundwater. Microbial degradation products include dichloroethene and vinyl chloride.

Humans are most likely to be exposed to TCE in air. TCE also may occur in drinking water supplies and consumer products, including metal cleaners, spot removers, rug cleaning fluids, paints, typewriter correction fluid, adhesives, and paint removers. TCE may cause adverse health effects following exposure via inhalation, ingestion, or skin or eye contact. TCE primarily affects the central nervous system. Short-term exposure to very high levels has caused unconsciousness and death. People who breathe moderate levels may experience headaches, dizziness, or lack of coordination. Additional symptoms may include drowsiness, blurred vision, mental confusion, flushed skin, tremors, nausea, vomiting, fatigue, and irregular heartbeat. Although most people can smell TCE at levels below those that cause adverse health effects, people vary in their ability to detect odors and consequently odor may not alert an individual to an unwanted exposure. Skin contact with high concentrations of TCE can cause rashes.

There is some evidence that children born to parents who drank TCE-contaminated well water experience an increased incidence of heart problems. However, because other chemicals were present in the drinking water and other individuals who drank TCE-contaminated water had healthy babies, it is not known if TCE causes birth defects or affects human reproduction.

Health effects from long-term exposures to TCE have mostly been studied in animals. Animals exposed to moderate levels of TCE experienced enlarged livers. Higher exposures caused liver and kidney damage. It is not clear if these effects would occur in humans. Toxicity indices for noncarcinogenic effects of TCE are not currently available.

Exposure of laboratory animals to TCE has been associated with an increased incidence of a variety of tumors, including kidney, liver, and lung cancers. It is uncertain whether people exposed to TCE have a higher risk of developing cancer. TCE was considered a Group B2, probable human carcinogen; however, that designation is currently undergoing review. A

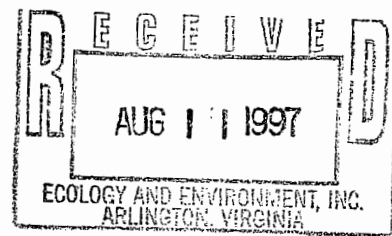
provisional oral slope factor and a provisional inhalation unit risk have been developed for TCE by the Superfund Health Risk Technical Support Center at the EPA's Environmental Criteria and Assessment Office. The oral slope factor, $1.1 \times 10^{-2} \text{ (mg/kg-day)}^{-1}$, is the geometric mean of the upperbound slope estimates from two gavage bioassay studies in which male and female mice exposed to TCE showed an increased incidence of hepatocellular carcinomas (EPA 1985). The inhalation unit risk, $1.7 \times 10^{-6} \text{ (mg/m}^3\text{)}^{-1}$, is derived from four mouse inhalation studies and is the geometric mean of the unit risks associated with an increased incidence of lung cancer (EPA 1987). The corresponding inhalation slope factor for TCE is $6.0 \times 10^{-3} \text{ (mg/mg-day)}^{-1}$.

I3

Streamlined Ecological Risk Evaluation Supporting Information



ILLINOIS
DEPARTMENT OF
NATURAL RESOURCES



524 South Second Street, Springfield 62701-1787

Jim Edgar, Governor • Brent Manning, Director

August 5, 1997

Agnieska Rawa
Biologist
Ecology and Environment, Inc.
Rosslyn Center, 1700 North Moore Street
Arlington, Virginia 22209

Re: Information Request for the Jennison-Wright site in Madison County, IL

Dear Ms. Rawa:

I have reviewed the Natural Heritage Database for the presence of threatened and endangered species, Illinois Natural Area Inventory (INAI) sites, and dedicated Illinois Nature Preserves within a one mile radius of the site in Granite City located in Township 3N, Range 10W, Section 13. According to the Database, there are no known occurrences of the above mentioned resources within a one mile radius of the site. There are also no known occurrences of threatened and endangered species in the Mississippi River in the 15 miles downstream of the site.

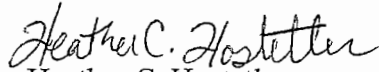
Review of the National Wetlands Inventory (NWI) maps, however, indicates the presence of wetlands within a one mile radius of the site. Additionally, there are wetlands present 15 miles downstream of the site. It is important to note that although IDNR review of NWI maps is a good indication of possible wetland impacts, it is the responsibility of the applicant, or in this case, the investigators to confirm wetland impacts through field assessments. The NWI maps are used by our office for a cursory review only.

Though we cannot charge you for the request, we do urge you to support the database with a donation to the Illinois Wildlife Preservation Fund. Your request costs approximately \$50 in staff time and resources to complete. Donations can be made to:

Illinois Wildlife Preservation Fund
Illinois Department of Natural Resources
Division of Natural Heritage
524 South Second Street
Springfield, Illinois 62701-1787

If you need additional information or have any questions, please do not hesitate to contact me at 217-785-5500.

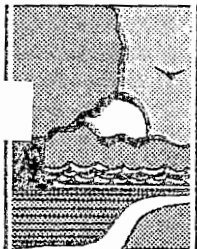
Sincerely,

A handwritten signature in cursive script that reads "Heather C. Hostetler".

Heather C. Hostetler

Environmental Database Specialist

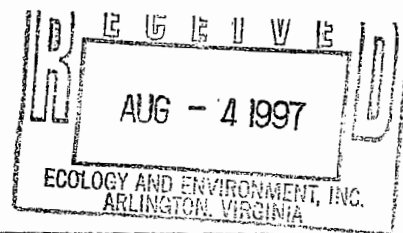
Division of Natural Resource Review & Coordination



ILLINOIS
DEPARTMENT OF
NATURAL RESOURCES

524 South Second Street, Springfield 62701-1787

Jim Edgar, Governor • Brent Manning, Director



July 30, 1997

Dear Ms. Rawa:

In response to your recent inquiry regarding aquatic resources at or near the Jennison-Wright site in Madison County, the area highlighted on your fax transmittal has no stream or lake habitat present. The nearest "downstream" water is the Chain of Rocks Canal, an 8.5 mile long navigational bypass of the Mississippi River. While we have never collected fisheries data from the canal itself, its connection to the river would allow use by many of the 150 plus fish species known from the Upper Mississippi River system. This list would include many important sport and commercial species along with rare fishes such as the Federally Endangered pallid sturgeon, although the latter has not been collected from this vicinity since the turn of the century.

The topo quad shows an unnamed tributary ditch flowing alongside the Canal. Again, we have no sampling data from this body of water but it likely supports a low diversity of ecologically tolerant species. Our closest stream sampling site to the project area, Cahokia Canal, yielded the following 14 species in a 1984 survey:

gizzard shad	yellow bullhead
common carp	channel catfish
golden shiner	mosquitofish
bigmouth shiner	green sunfish
red shiner	orangespotted sunfish
bullhead minnow	bluegill
creek chub	white crappie

Over 60% of this sample was made up of creek chubs and green sunfish, two species particularly tolerant of environmental stress. I would expect similar communities in any of the low-lying, channelized ditches close to the project area. Thank you for your interest in Illinois streams; please call if I can be of any further help.

Sincerely,

Randy W. Sauer

Randy Sauer
IDNR Fisheries
20100 Hazlet Park Rd
Carlyle, IL 62231

618/594-3627

J

**Potential Applicable or
Relevant and Appropriate
Requirements**

POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS ENGINEERING EVALUATION/COST ANALYSIS JENNISON WRIGHT SITE GRANITE CITY, ILLINOIS						
Potential ARARs	Alternatives					
	Listed Hazardous Waste Removal	Soil and Waste Removal	NAPL Removal	Groundwater	Building Demolition	Miscellaneous Items
Action-Specific ARARs						
RCRA Identification and Listing of Hazardous Waste (40 CFR 261.1-261.38)	Applicable	Applicable to S&W2, S&W3, and S&W4.	Applicable to all alternatives	Not applicable	Not applicable	Relevant/appropriate
RCRA Standards Applicable to Generators of Hazardous Waste (40 CFR 262.10-262.89)	Relevant/appropriate	Relevant/appropriate to S&W2, S&W3, and S&W4	Relevant/appropriate	Not applicable	Not applicable	Relevant/appropriate
RCRA Standards Applicable to Transporters of Hazardous Waste (40 CFR 263.10-263.31)	Relevant/appropriate	Relevant/appropriate to S&W2, S&W3, and S&W4	Relevant/appropriate	Not applicable	Not applicable	Relevant/appropriate
RCRA Standards Applicable to Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities (40 CFR 264.1-264.1202)	Relevant/appropriate	Relevant/appropriate to S&W2, S&W3, and S&W4	Relevant/appropriate	Not applicable	Not applicable	Relevant/appropriate
RCRA Land Disposal Restriction (40 CFR 268.1-268.50)	Applicable	Applicable to S&W3 and S&W4	Relevant/appropriate to all alternatives	Not applicable	Not applicable	Relevant/appropriate
Dust Suppression (RCRA § 3004(e))	Applicable	Applicable to all alternatives	Not applicable	Not applicable	Applicable	Applicable
Clean Water Act (33 U.S.C. 1251)	Not applicable	Applicable to S&W1 and S&W2	Applicable to all alternatives	Applicable to all alternatives	Not applicable	Not applicable

POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS ENGINEERING EVALUATION/COST ANALYSIS JENNISON WRIGHT SITE GRANITE CITY, ILLINOIS						
Potential ARARs	Alternatives					
	Listed Hazardous Waste Removal	Soil and Waste Removal	NAPL Removal	Groundwater	Building Demolition	Miscellaneous Items
Action-Specific ARARs (Cont.)						
Clean Air Act (42 U.S.C. 7401)	Not applicable	Applicable to S&W3	Not applicable	Not applicable	Not applicable	Not applicable
OSHA requirements for worker engaged in response or other hazardous waste operations (29 CFR 1910.120)	Applicable	Applicable to all alternatives	Applicable to all alternatives	Applicable to all alternatives	Applicable to all alternatives	Applicable
IAC - Title 35 Subtitle B Air Pollution	Not applicable	Applicable to S&W3	Not applicable	Not applicable	Not applicable	Not applicable
IAC - Title 35 Subtitle C Water Pollution Part 304 Effluent Standards	Not applicable	Applicable to S&W2	Applicable to all alternatives	Applicable to all alternatives	Not applicable	Not applicable
IAC - Title 35 Subtitle F Public Water Supplies Part 620 Water Quality	Not applicable	Applicable to S&W1 and S&W2	Applicable to all alternatives	Applicable to all alternatives	Not applicable	Not applicable
IAC - Title 35 Subtitle G Waste Disposal	Applicable	Applicable to S&W3 and S&W4	Applicable to all alternatives	Not applicable	Applicable to all alternatives	Applicable
Chemical-Specific ARARs						
Safe Drinking Water Act MCLs (40 CFR 141.11-141.16)	Not applicable	Applicable to S&W1 and relevant to S&W2	Applicable to all alternatives	Applicable to all alternatives	Not applicable	Not applicable
Asbestos Standards for Demolition (40 CFR 61.145)	Not applicable	Not applicable	Not applicable	Not applicable	Applicable	Not applicable

POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS ENGINEERING EVALUATION/COST ANALYSIS JENNISON WRIGHT SITE GRANITE CITY, ILLINOIS						
Potential ARARs	Alternatives					
	Listed Hazardous Waste Removal	Soil and Waste Removal	NAPL Removal	Groundwater	Building Demolition	Miscellaneous Items
Location-Specific ARARs						
Underground Injection Control Program (40 CFR 144.1-144.70)	Not applicable	Not applicable	Applicable to all alternatives	Applicable to GW2	Not applicable	Not applicable
State Underground Injection Control Program (40 CFR 147.1-147.3109)	Not applicable	Not applicable	Applicable to all alternatives	Applicable to GW2	Not applicable	Not applicable
Publicly Owned Treatment Works Discharge Requirements (Granite City, Illinois)	Not applicable	Applicable to S&W2	Applicable to all alternatives	Applicable to all alternatives	Not applicable	Not applicable

Key:

ARARs = Applicable or Relevant and Appropriate Requirements.
 CFR = Code of the Federal Regulations.
 IAC = Illinois Administrative Code.
 MCLs = Maximum Contaminant Levels.
 NAPL = Non-Aqueous-Phase Liquids.
 OSHA = Occupational Safety and Health Administration.
 RCRA = Resource Conservation and Recovery Act.
 U.S.C. = United States Code.

K

Biofeasibility Study Report

Report Of Analyses

Prepared by:

Microbe Inotech Laboratories



the MiL, Inc.

Summary Report of Analysis [4881]

Ecology & Environment
Mr. Bill Schaefer
33 N. Dearborn St. 9th
Chicago, IL 60602

August 26, 1997

Description and Chain of Custody Record Information:

Fri, Apr 18, 1997 - 10:00 AM: Received by courier, two liquid samples and two soil samples for biofeasibility study. Endpoint to be done with Free Product.

MiL, Inc. REPORT & Invoice No.: MILB-4881

Purchase Order No.: IQ6030

Project No.: IQ6030

Project Name: Jennison-Wright

Processing:

[Standard Bacterial Plate Count 9215- standard spread plate method] Within 20 minutes of reception an aliquot from each sample is checked for weight or volume and serially diluted. The dilutions are aseptically transferred in a laminar flow biological cabinet and plated onto previously prepared and dried TSA medium in Petri plates. Observations for colony forming units (CFU) are made after 24 and 48 hours of incubation at 28°C.

Total Heterotrophic Plate Count Results:

DATA:Direct Count: Colony Forming Units (CFU/ ml or g) on TSA			
Sample	24 Hours	48 Hours	Types
SB-32	3.96×10^4	4.17×10^5	7
SB-33	1.00×10^2	2.58×10^4	3
MW-5S	$<1.00 \times 10^1$	1.40×10^2	2
MW-10S	4.00×10^1	1.09×10^4	2
Total morphologically different types among samples: 7			

Approximate Percentages of Strain Types in Each Sample:

Sample→ Strain ↓	SB-32	SB-33	MW-5S	MW-10S
4881-1	35			
4881-2	35	30		
4881-3	10			
4881-4	5	30		40
4881-5	5	40	60	60
4881-6	5		40	
4881-7	5			

GC-FAME Processing:

Following isolation, the strains are individually streaked onto TSA. The strains are incubated for 24 hours and then processed by standard GC-FAME Method 1. The processed strains are examined against both the Aerobe (TSBA [rev. 3.90]) and Clinical Aerobe (CLIN [rev.3.90]) GC-FAME databases.

The client is strongly urged to examine the data sheets accompanying the chromatogram of the strain for alternate possible identities not summarized here. Should a question be raised on the basis of sample history, ecology and source, this additional information may be enlightening.

GC-FAME Results:

Strain	Primary ID by GC-FAME	Sim. Coef.	Dist. Coef.
4881-1	<i>Bacillus mycoides</i> GC subgroup B	.731	2.870
4881-2	<i>Bacillus subtilis</i>	.763	2.614
4881-3	<i>Bacillus megaterium</i> GC subgroup A	.824	2.210
4881-4	<i>Bacillus badius</i>	.286	5.618
4881-5	<i>Alcaligenes eutrophus</i>	.765	2.598
4881-6	<i>Pseudomonas putida</i> biotype A	.704	3.160
4881-7	<i>Bacillus circulans</i>	.510	4.376

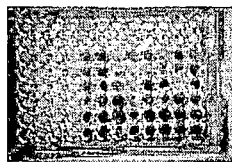
Disclaimer: The MiL, Inc. is not a human clinical diagnostic laboratory and makes no warranty to the fitness of this data for such purposes.

Similarity and Distance Coefficient

In order to create the database that we use to identify your organisms, thousands of species of bacteria had to be tested. In fact, each species itself had to be tested hundreds of times to determine a set of characteristics unique to it. The species characteristics that are in our database are an "average" of the characteristics of hundreds of tested bacteria of the same species. The Similarity and Distance Coefficient of your organism refers to the similarity and distance to the hypothetical 'mean' organism in the database. The database organism has a similarity coefficient of one and a distance of zero. So the closer your strain is to one and zero the more closely it matches the mean organism in the database.

A good match is one with a similarity coefficient greater than .5 and a distance coefficient of less than 7.

Endpoint Assay Processing



Representative Microplate

The bacterial strains to be tested are grown overnight (18 hours) on trypticase soy broth agar at 28°C, and then suspended in sterile saline to a turbidity of 40%-50%T. The strains are then placed into 96-well microtiter plate wells that contain an undisclosed growth medium of mineral salts, vitamins and buffer without a major carbon source. The wells also contained a tetrazolium dye, redox indicator system. Bacterial growth (metabolic respiration, or oxidation of carbon sources) is monitored by tetrazolium reduction as measured at 590 nm in a microplate reader. **Free Product** (15 µl) was added to selected wells, to serve as the major carbon source. Trypticase soy broth

served as a positive growth control and water served as a negative growth control. Total volume of each well is 150µl.

Total growth is measured after 24 hours incubation at 28 °C. The data is processed and given with background blank values subtracted. Bar-chart interpretation of the data is provided on the following pages. The design template of the experiment is located in the raw data section of this report. The template shows the arrangement and position of strains in the matrix.

Endpoint Assay Results:

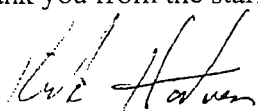
Contaminant ⇒ Strain ↓	Free Product
4881-1	Inhibited
4881-2	Inhibited
4881-3	Inhibited
4881-4	Inhibited
4881-5	Excellent
4881-6	Inhibited
4881-7	Inhibited

Chemistry Results: (mg/L except as noted)

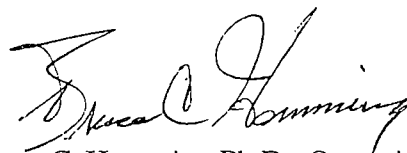
Sample → Analyte ↓	SB-32	SB-33	MW-5S	MW-10S	Method Number
Ammonia	18.5	162	1.46	0.22	4500-NH3 F
Nitrate	<1.0	35.8	10.8	3.89	4500-NO3 E
Nitrite	<1.0	<1.0	<0.10	<0.10	4500-NO2 B
pH	5.92	8.85	7.01	7.17	4500- H+B
o Phosphorous	2.85	6.75	<0.01	0.027	4500- P E
Total Organic Carbon	420	33,100	588	9.3	5310-C
Sulfate	<100	<500	53	117	4500-SO4-2E
Total Iron	16,000	19,500	21.4	20.7	3500-Fe B

All tests performed at Teklab IEPA#100226 IDPH#17584

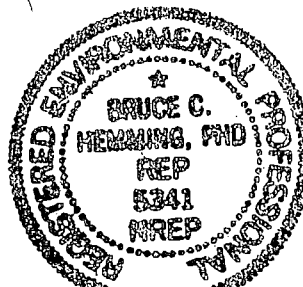
Thank you from the staff on project:



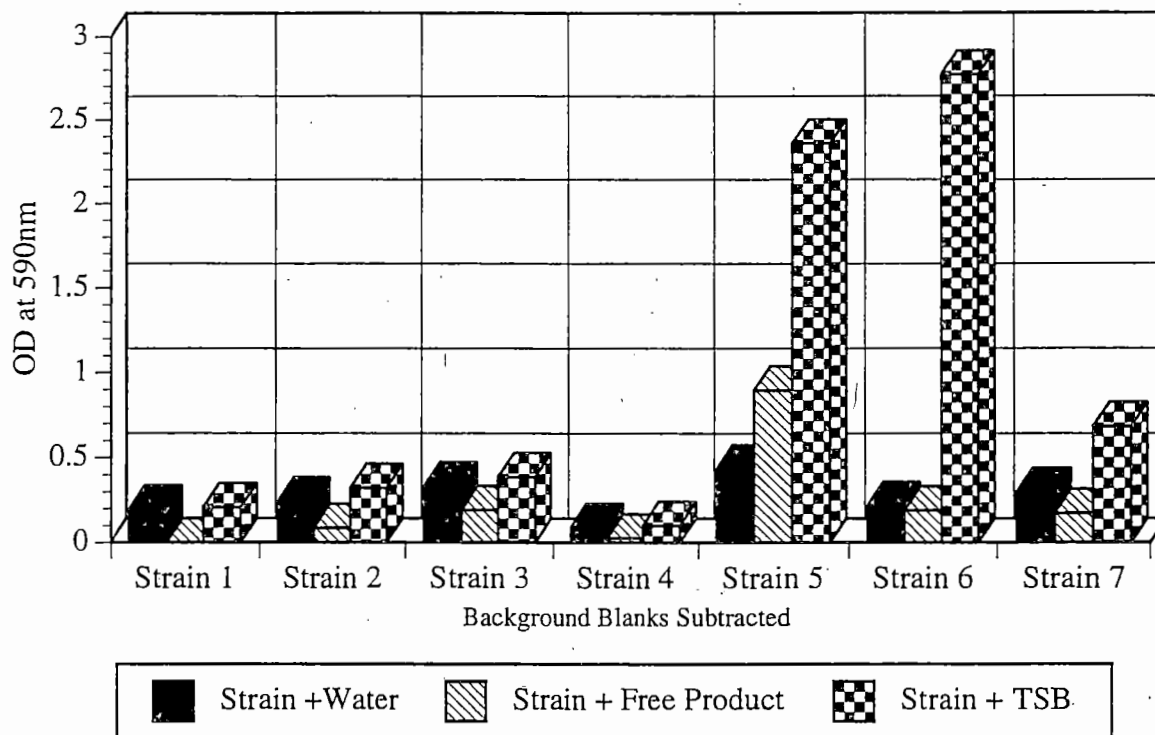
Kirk M. Hartwein - Laboratory Manager



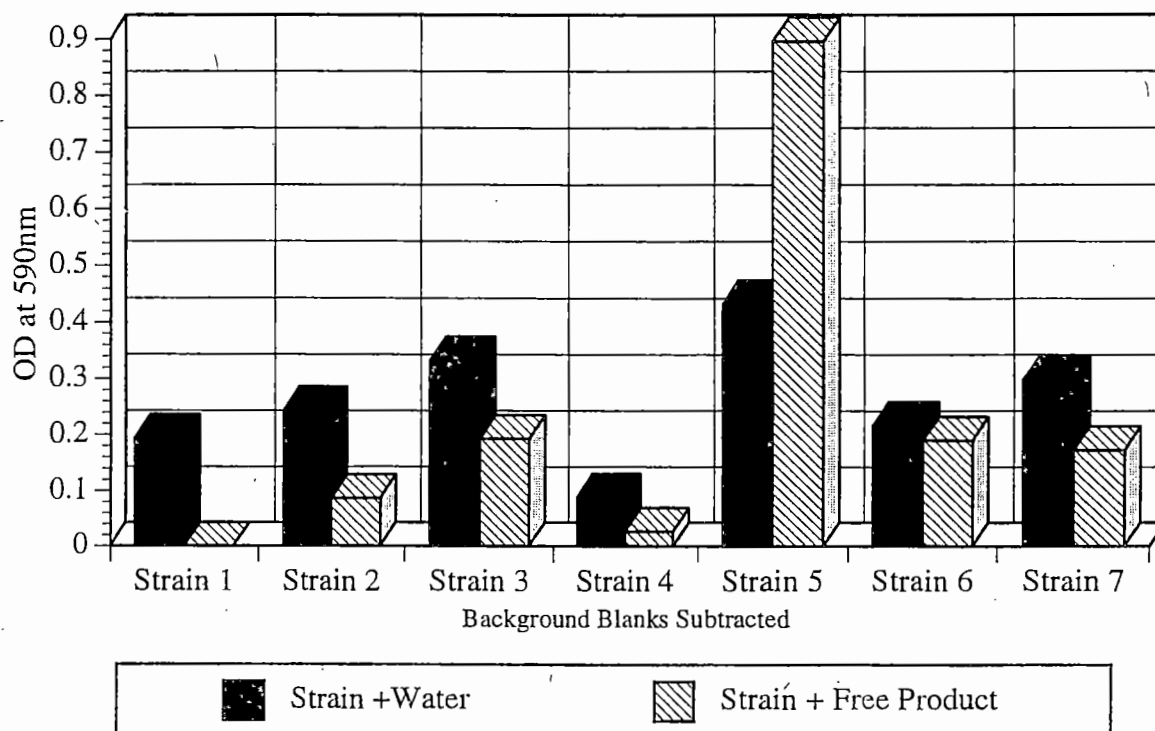
Bruce C. Hemming Ph.D., Operations Director



24 Hour Endpoint Assay On 7 Strains With Free Product



Same data as above without positive growth control



MICROBE INOTECH LABORATORIES, INC.

Analysis Request Form

SEND REPORT TO:

SEND INVOICE TO:

ATTENTION: BILL SCHAEFER
 COMPANY: ECOLOGY AND ENVIRONMENT, INC.
 ADDRESS: 33 N. DEARBORN ST. 9TH
CHICAGO, IL 60602

ATTN: ACCOUNTS PAYABLE - AMY BUGG
ECOLOGY AND ENVIRONMENT, INC.
33 N. DEARBORN ST. 9TH
CHICAGO, IL 60602

PHONE: (312) 578-9243 FIELD - (618) 451-9253
 FAX: (312) 578-9345

PURCHASE ORDER NUMBER: REFERENCE PROJECT NO.PROJECT NUMBER: IG 6030PROJECT NAME: JENNISON-WRIGHT

AUTHORIZED SIGNATURE:

Bill SchaeferDATE: 8/12/97

PRINTED:

BILL SCHAEFER

TERMS: NET 30 DAYS

FINANCE CHARGES OF 1.5% WILL BE ADDED TO ALL OVERDUE INVOICES

[SIGNATURE AND/OR SAMPLE SUBMISSION INDICATES ACCEPTANCE OF MiL, INC.'S STANDARD TERMS & CONDITIONS]

SOIL OR WATER SAMPLES

① TOTAL HETEROTROPHIC
 PLATE COUNT WITH
 PHONE CALL.

② TOTAL PLATE COUNT AND
 GC-FAME/BIOLOG™
 IDENTIFICATIONS.

③ BIOREMEDIATION
 FEASIBILITY STUDY
 (NOTE WITH OR W/O CHEM)

④ CUSTOM
 MICROBIOLOGY

ANALYSIS TYPE CIRCLE NUMBER(S)	SAMPLE NAME	CUSTOM TESTS	SAMPLE DESCRIPTION/ SIZE	COLLECTION DATE/TIME
1 2 (3) 4	SB32(6-7) (CONTAMINATED - CENTER OF PLUME)	WITH CHEM	SOIL 8oz	8/11/97 1515
1 2 (3) 4	SB33(12-13) (LOW LEVEL - EDGE OF PLUME)		SOIL 8oz	8/12/97 0930
1 2 (3) 4	MW-5S (CONTAMINATED - CENTER OF PLUME)		GROUNDWATER 1L	8/12/97 1130
1 2 (3) 4	MW-10S (CLEAN - EDGE OF PLUME)		GROUNDWATER 1L	8/12/97 1145
1 2 (3) 4	MW-5S FREE PRODUCT	↓	FREE PRODUCT ~5m	8/12/97 1150
1 2 3 4				
1 2 3 4				
1 2 3 4				
1 2 3 4				
1 2 3 4				
1 2 3 4				
1 2 3 4				

⇒ LIST SUBSTRATE(S) TO BE USED IN THE ENDPOINT ASSAY: Creosote, PCP

ATTACH A SEPARATE SHEET FOR ADDITIONAL SAMPLES

☐ I WOULD LIKE TO RECEIVE THE SUMMARY REPORT ONLY, NOT THE FULL SET OF DATA (FIRST TIME CLIENTS WILL RECEIVE ALL DATA)
☐ RESULTS TO BE SENT OVERNIGHT - EXTRA SHIPPING CHARGE ☒ SUMMARY TO BE FAXED, DATA SENT BY REGULAR MAIL
☒ REPORT TO BE MAILED REGULAR MAIL ☐ SUMMARY TO BE FAXED, DATA SENT OVERNIGHT - SHIPPING CHARGE

Send 4oz samples (16 oz for chemistry) and this form to:
 the MiL, Inc. 12133 BRIDGETON SQUARE DR. ST. LOUIS, MO 63044-2616
 PHONE: (800) 688-9144 FAX: (314) 344-3031

AR REV. 6/96

GC-FAME

#

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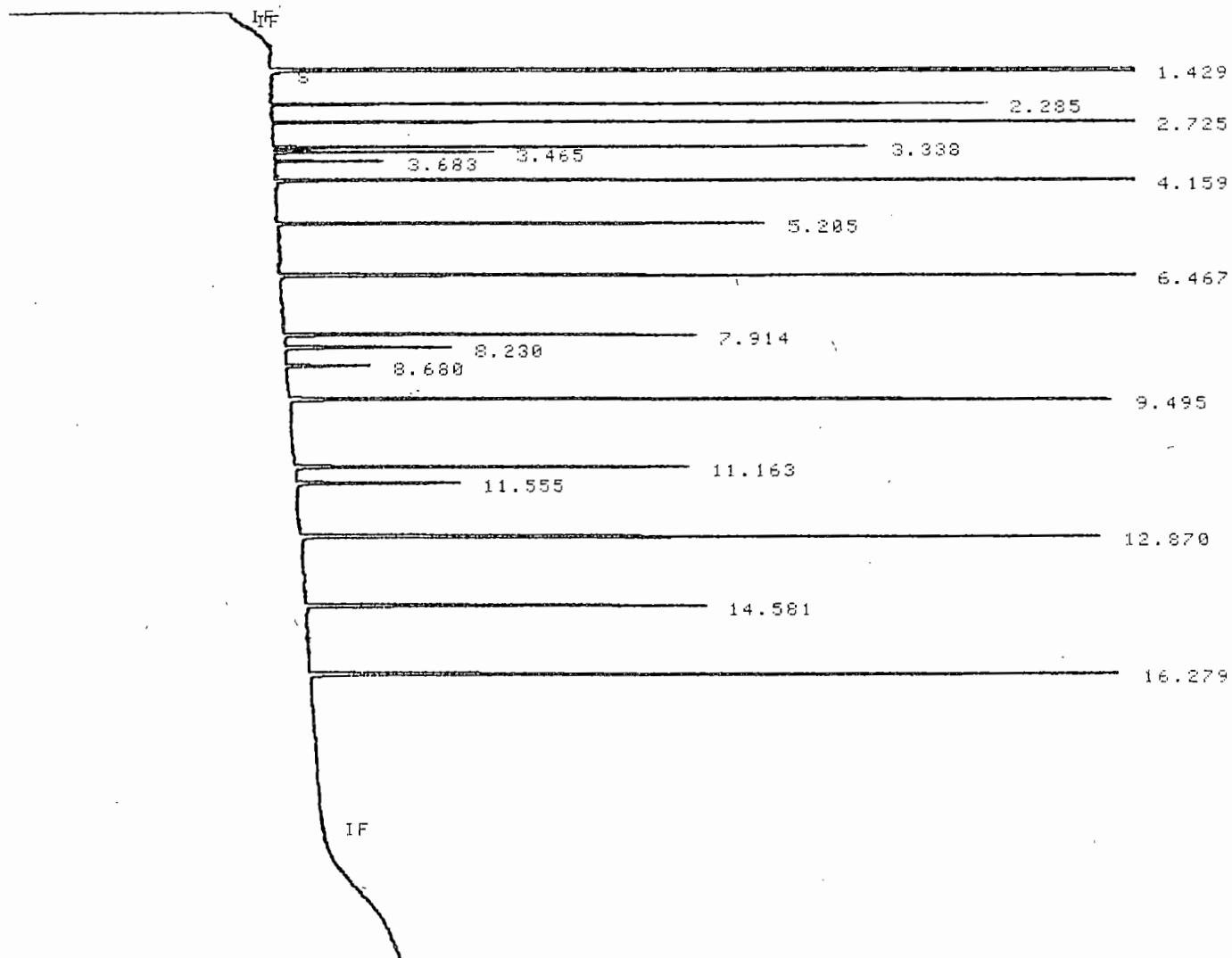
BOTTLE: 1 ID#: 1MON 18-AUG-97 13:21:33

FILE DATA1:F97818462

CALIBRATION STANDARD AEROBE

RUN # 2 AUG 18, 1997 04:05:51

START



RUN # 2 AUG 18, 1997 04:05:51

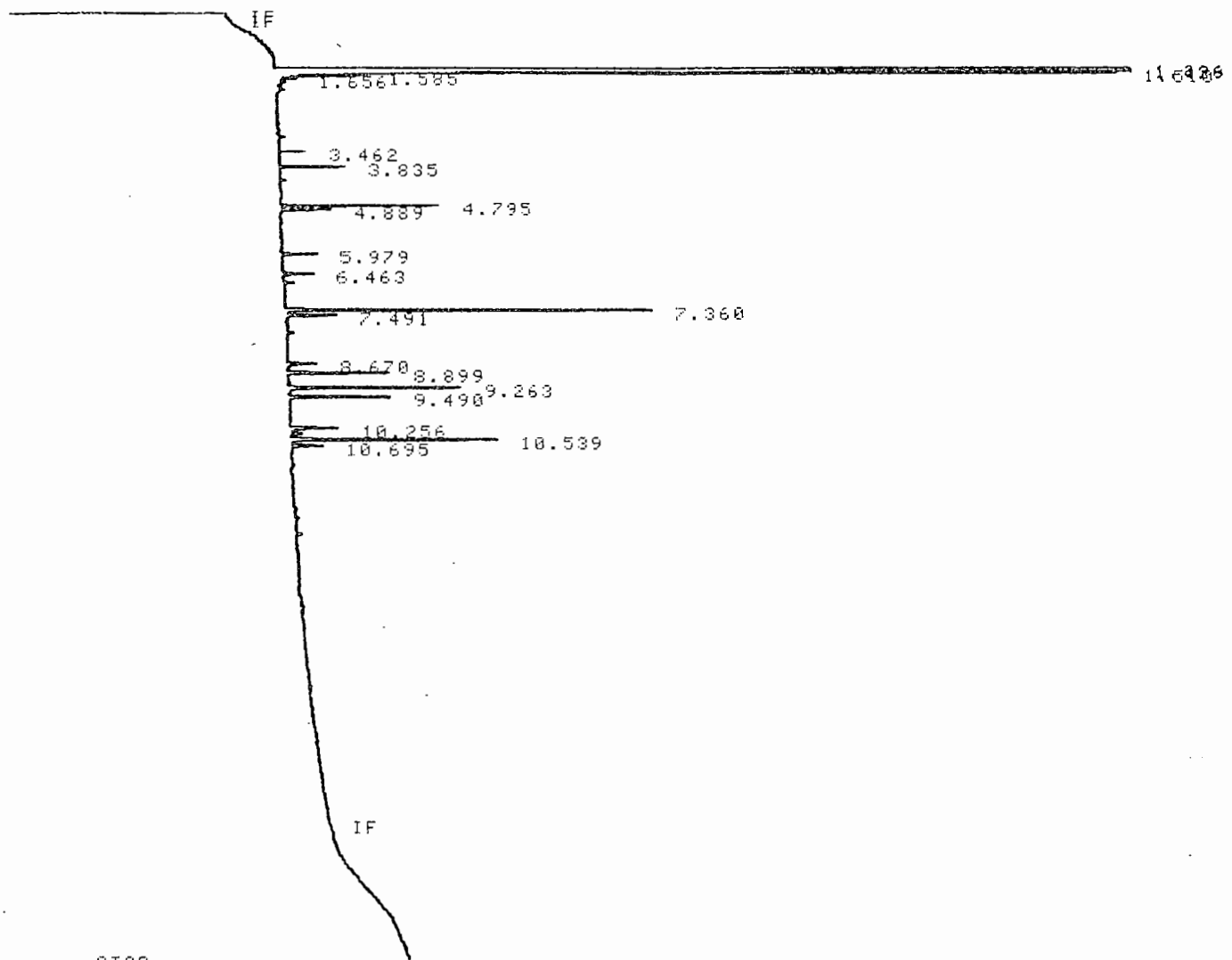
START-No plot

END OF SIGNAL

#

```
=====
BOTTLE:  2   ID#:  2MON 18-AUG-97 13:51:41
                                           FILE  DATA1:F97818462
4881 ECOLOGY & ENVIRON. 1
```

```
RUN #    3      AUG 18, 1997  04:36:09
START
```



STOP

```
RUN #    3      AUG 18, 1997  04:36:09
START-No plot
```


#

=====

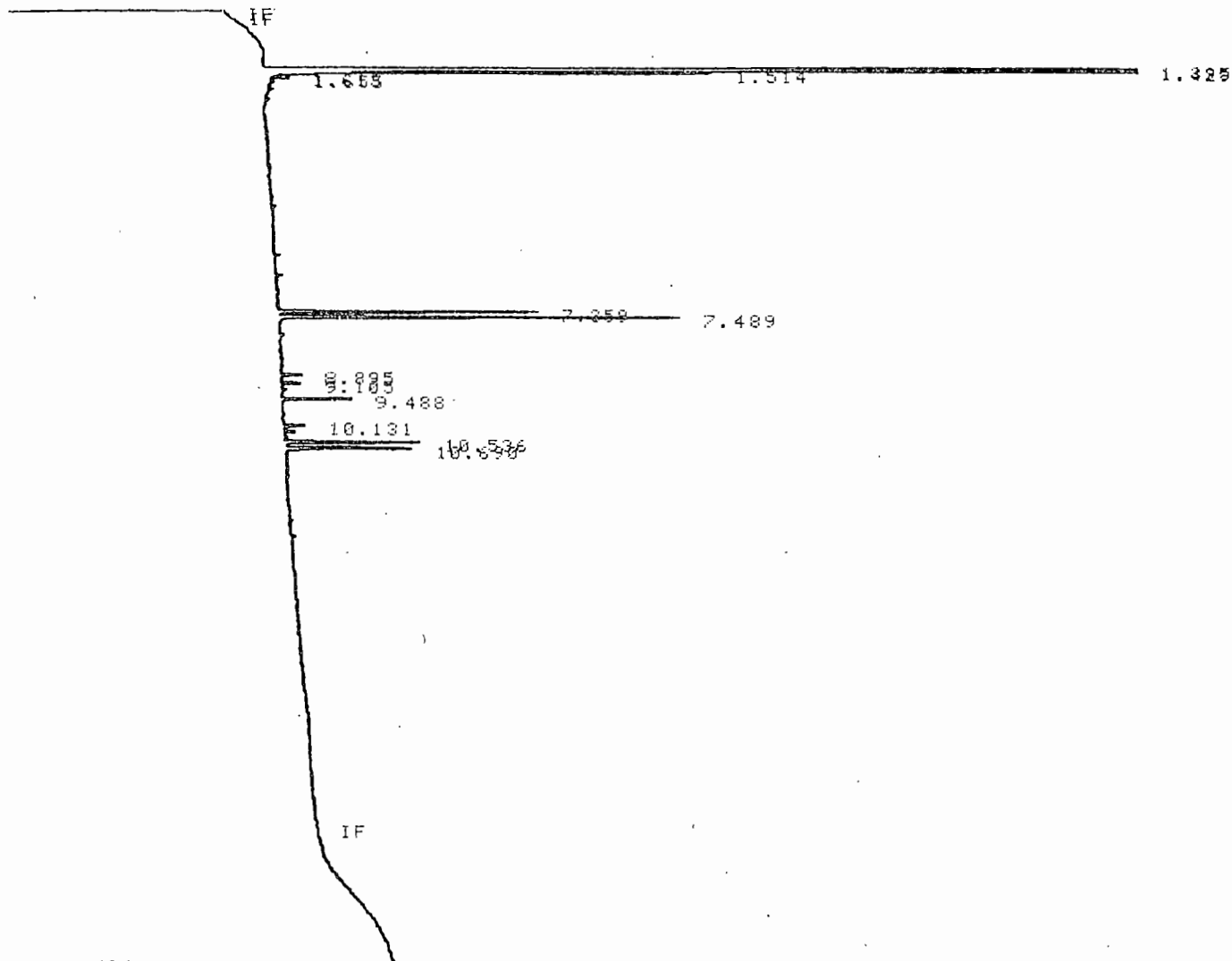
BOTTLE: 3 ID#: 3MON 18-AUG-97 14:23:22

FILE DATA1:F97818462

4881 ECOLOGY & ENVIRON. 2

RUN # 4 AUG 18, 1997 05:06:57

START



STOP

RUN # 4 AUG 18, 1997 05:06:57

START-No plot

END OF SIGNAL

=====

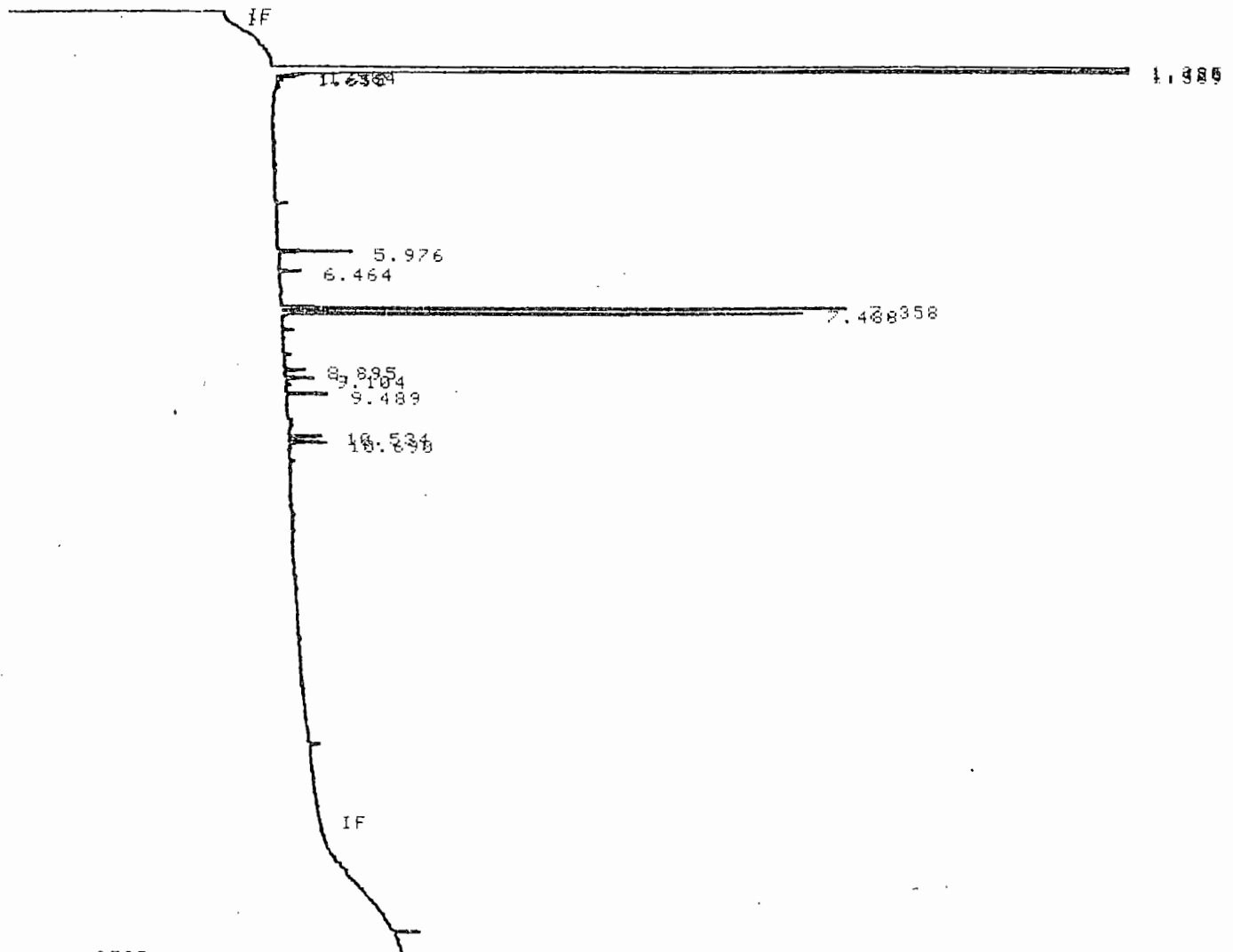
BOTTLE: 4 ID#: 4MON 18-AUG-97 14:53:20

FILE DATA1:F97818462

4881 ECOLOGY & ENVIRON. 3

RUN # 5 AUG 18, 1997 05:37:14

START



RUN # 5 AUG 18, 1997 05:37:14

START-No Plot

END OF SIGNAL

#

=====

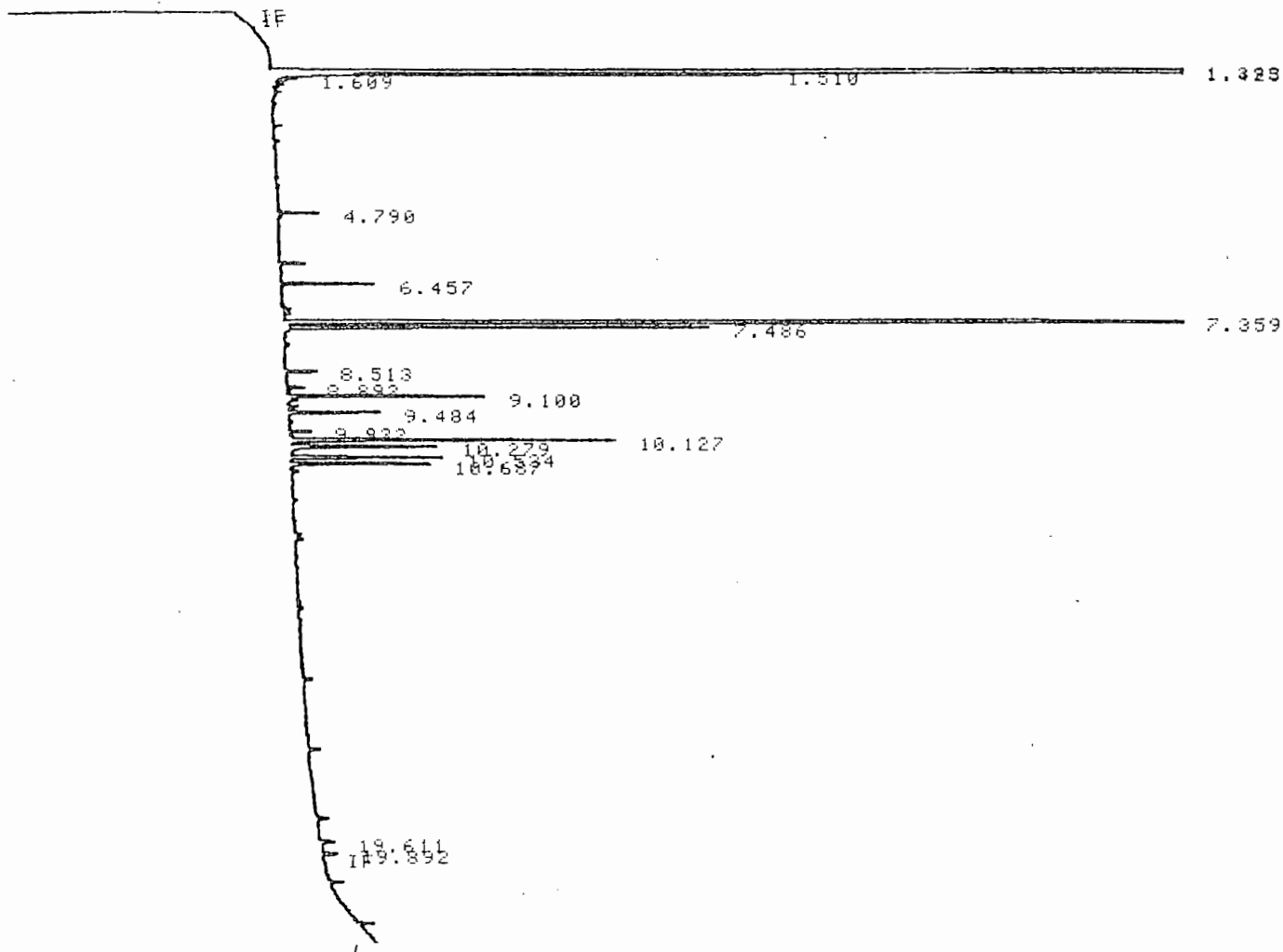
BOTTLE: 3 ID#: 70TUE 19-AUG-97 13:03:52

FILE DATA1:F97819433

4881-4 ECOLOGY & ENVIRONMENT

RUN # 11 AUG 19, 1997 03:47:28

START



=====

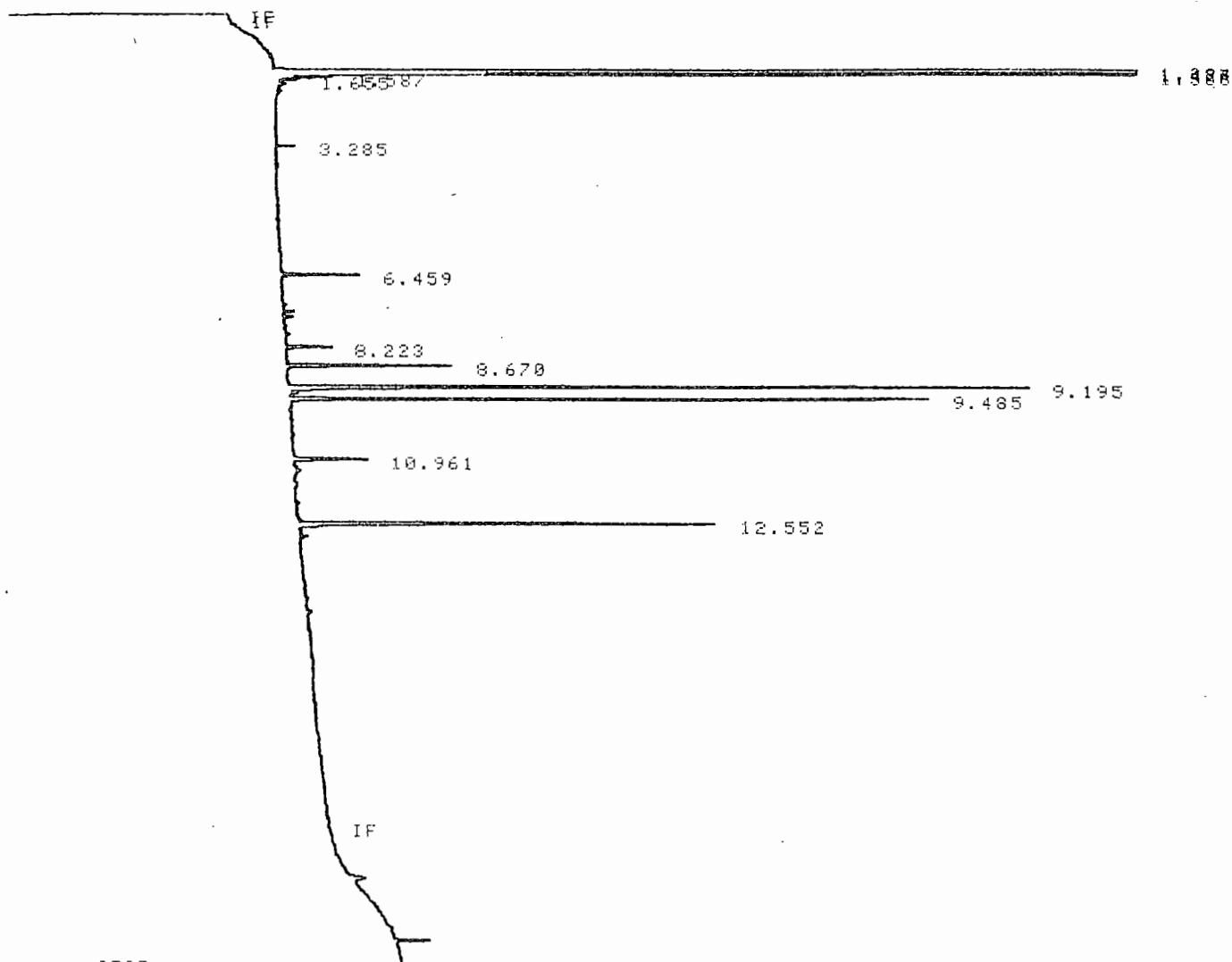
BOTTLE: 5 ID#: 5MON 18-AUG-97 15:23:51

FILE DATA1:F97818462

4881 ECOLOGY & ENVIRON. 5

RUN # 6 AUG 18, 1997 06:07:30

START



STOP

RUN # 6 AUG 18, 1997 06:07:30

START-No plot

END OF SIGNAL

#

=====

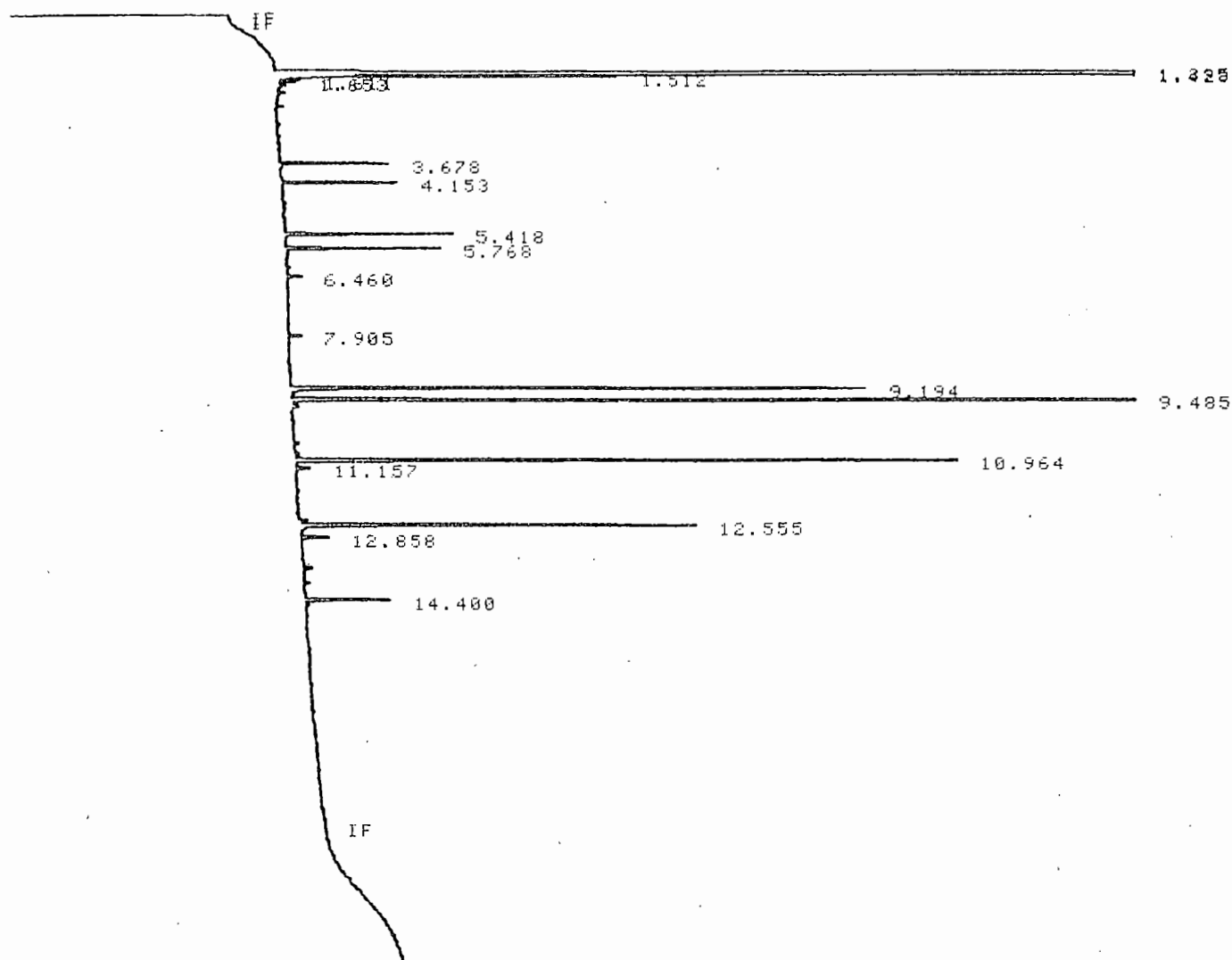
BOTTLE: 6 ID#: 6MON 18-AUG-97 15:54:09

FILE DATA1:F97818462

4881 ECOLOGY % ENVIRON. 6

RUN # 7 AUG 18, 1997 06:37:49

START



STOP

RUN # 7 AUG 18, 1997 06:37:49

START-No plot

END OF SIGNAL

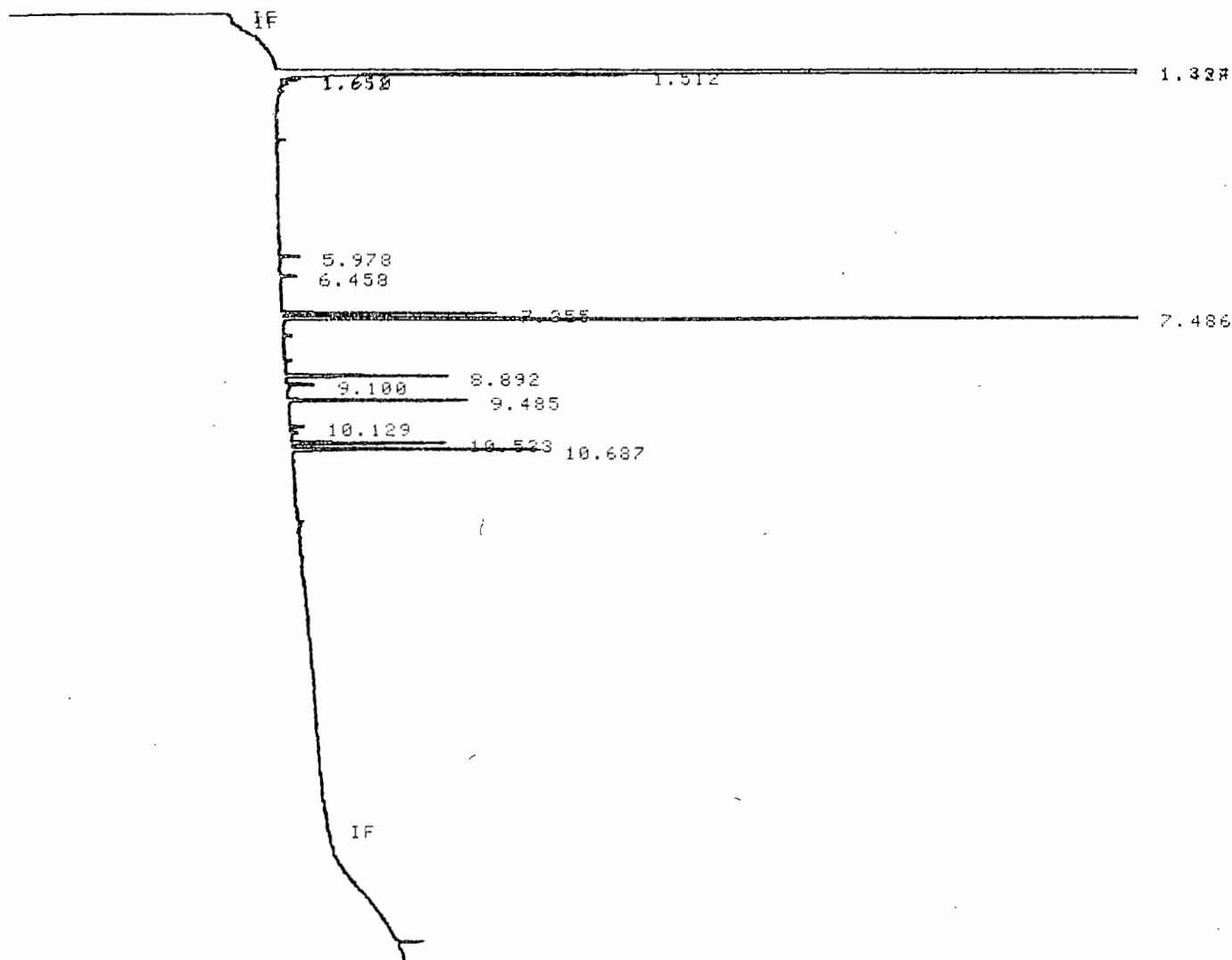
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BOTTLE: 7 ID#: 7MON 18-AUG-97 16:24:33

FILE DATA1:F97818462

4881 ECOLOGY & ENVIRON. 7

RUN # 8 AUG 18, 1997 07:08:09
START



STOP

RUN # 8 AUG 18, 1997 07:08:09
START-No plot
END OF SIGNAL

ID: 1 Calibration Standard Aerobe Date of run: 10-AUG-97 04:05:51
 Bottle: 1 CALIBRATION [AEROBE]

RT	Area	Ar/Ht	Respon	ECL	Name	%	Comment 1	Comment 2
1.440	102500400	0.022	...	7.057	SOLVENT PEAK	...	(min rt	
2.295	12520	0.023	1.217	9.000	9:0	5.08		
2.735	25920	0.024	1.178	10.000	10:0	10.17	Peak match	0.0014
3.349	13320	0.027	1.139	11.000	11:0	5.05	Peak match	-0.0022
3.475	5288	0.028	1.132	11.154	10:0 20H	2.00	Peak match	0.0049
3.693	2816	0.029	1.122	11.420	10:0 30H	1.05	Peak match	0.0014
4.169	27840	0.030	1.100	12.000	12:0	10.21	Peak match	0.0011
5.215	14368	0.033	1.063	13.000	13:0	5.09	Peak match	0.0028
6.477	29600	0.037	1.027	14.000	14:0	10.13	Peak match	0.0025
7.924	15328	0.040	0.992	15.000	15:0	5.07	Peak match	-0.0023
8.240	6616	0.043	0.985	15.200	14:0 20H	2.17	Peak match	0.0058
8.690	3392	0.043	0.976	15.485	Sum In feature 3	1.10	Peak match	0.0028 14:0 30H/16:1 ISO I
9.505	31592	0.043	0.959	16.000	16:0	10.10	Peak match	-0.0004
11.173	16624	0.045	0.928	17.000	17:0	5.14	Peak match	-0.0023
11.566	7360	0.049	0.921	17.230	16:0 20H	2.26	Peak match	0.0048
12.880	33800	0.046	0.899	18.000	18:0	10.13	Peak match	-0.0007
14.592	17400	0.047	0.872	19.000	19:0	5.06	Peak match	0.0013
16.289	36008	0.049	0.848	20.000	20:0	10.18		
*****	3392	...	...	...	SUMMED FEATURE 3	1.10	12:0 ALDE ?	unknown 10.928
*****	...	...	...	...	...	...	16:1 ISO I/14:0 30H	14:0 30H/16:1 ISO I

Solvent Ar Total Area Named Area % Named Total Annt Nbr Ref ECL Deviation (Ref ECL Shift
 102500400 299792 299792 100.00 300042 0
 6000 PEAK MATCHING: PEAK POSITION MATCHING ERROR (RMS) IS 0.0029.

ID: 2 4881 ECOLOGY & ENVIRON. 1 Date of run: 18-AUG-97 04:36:09
 Bottle: 2 SAMPLE (AEROBIC)

PT	Area	Ar/Ht	Respon	ECL	Name	%	Comment 1	Comment 2
1.440	91254080	0.024	...	7.060	SOLVENT PEAK	...	< min rt	
1.520	3472	0.010	...	7.242	...	...	< min rt	
1.595	1000	0.021	...	7.413	...	...	< min rt	
3.845	1704	0.030	1.115	11.608	12:0 ISO	3.58	ECL deviates 0.000	Reference -0.003
4.805	4456	0.032	1.077	12.611	13:0 ISO	9.04	ECL deviates -0.001	Reference -0.004
4.899	1600	0.035	1.074	12.701	13:0 ANTEISO	3.24	ECL deviates 0.000	Reference -0.003
5.990	1344	0.041	1.041	13.617	14:0 ISO	2.63	ECL deviates -0.001	Reference -0.004
6.474	1328	0.045	1.027	14.001	14:0	2.57	ECL deviates 0.001	Reference -0.002
7.371	13120	0.039	1.005	14.621	15:0 ISO	24.84	ECL deviates 0.000	Reference -0.003
7.501	1992	0.042	1.002	14.711	15:0 ANTEISO	3.76	ECL deviates -0.000	Reference -0.003
8.680	1184	0.043	0.976	15.481	Sum In Feature 3	2.18	ECL deviates -0.001	16:1 ISO I/14:0 30H
8.908	3920	0.042	0.971	15.626	16:0 ISO	7.17	ECL deviates -0.000	Reference -0.004
9.273	7032	0.045	0.964	15.856	Sum In Feature 4	12.77	ECL deviates 0.009	15:0 ISO 20H/16:1w7c
9.500	3992	0.043	0.959	16.000	16:0	7.21	ECL deviates 0.000	Reference -0.003
10.266	2144	0.048	0.945	16.459	ISO 17:1 w5c	3.82	ECL deviates -0.002	
10.549	8320	0.044	0.940	16.629	17:0 ISO	14.72	ECL deviates 0.000	Reference -0.003
10.704	1392	0.045	0.937	16.722	17:0 ANTEISO	2.46	ECL deviates -0.000	Reference -0.003
*****	1184	...	...	...	SUMMED FEATURE 3	2.18	12:0 ALDE ?	unknown 10.928
*****	...	...	...	...	...	...	16:1 ISO I/14:0 30H	14:0 30H/16:1 ISO I.
*****	7032	...	...	...	SUMMED FEATURE 4	12.77	16:1 w7c/15 iso 20H	15:0 ISO 20H/16:1w7c

Solvent Ar Total Area Named Area % Named Total Amt Mbr Ref ECL Deviation Ref ECL Shift

91254080 53528 53528 100.00 53007 11 0.003 0.003

ISBA [Rev 3.90] Bacillus 0.721 (Bacillus cereus group)
 B. mycoides 0.721 (Bacillus cereus group)
 B. m. GC subgroup B 0.721 (Bacillus cereus group)
 CLIN [Rev 3.90] Bacillus 0.105
 B. mycoides 0.105

Comparison with ISBA [Rev 3.90]: Bacillus-mycoides-GC subgroup B(Bacillus cereus group)

Distance: 2.870

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
12:0 ISO	---	x---																			
13:0 ISO			x---	---																	
13:0 ANTEISO			x---																		
14:0 ISO			---	x																	
14:0			---	x																	
15:0 ISO									x	---											
15:0 ANTEISO									---	x											
16:0 ISO									---	x											
16:0									---	x											
ISO 17:1 w5c									---	x											
17:0 ISO									---	x											
17:0 ANTEISO									---	x											
SUMMED FEATURE 3									---	x											
SUMMED FEATURE 4									---	x											

Comparison with ISBA (Rev 3.90): *Bacillus-cereus*

Distance: 7.369

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
12:0 ISO.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
13:0 ISO.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
13:0 ANTEISO. . . .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
14:0 ISO.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
14:0.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
15:0 ISO.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
15:0 ANTEISO. . . .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
16:1 w7c alcohol. .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
16:0 ISO.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
16:0.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
15:0 20H.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
ISO 17:1 w10c. . . .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
ISO 17:1 w5c. . . .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
17:0 ISO.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
17:0 ANTEISO. . . .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
SUMMED FEATURE 3. .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
SUMMED FEATURE 4. .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Comparison with CLIN (Rev 3.90): *Bacillus-mycoides*

Distance: 8.000

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
12:0 ISO.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
13:0 ISO.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
13:0 ANTEISO. . . .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
14:0 ISO.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
14:0.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
15:0 ISO.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
15:0 ANTEISO. . . .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
15:0.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
16:1 w7c alcohol. .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
16:0 ISO.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
16:1 w11c.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
16:0.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
ISO 17:1 w10c. . . .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
ISO 17:1 w5c. . . .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
17:0 ISO.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
17:0 ANTEISO. . . .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
18:1 w9c.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
18:0.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
SUMMED FEATURE 3. .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
SUMMED FEATURE 4. .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
SUMMED FEATURE 6. .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

ID: 3 4881 ECOLOGY & ENVIRON. 2
 Bottle: 3 SAMPLE (ACROBEC)

Date of run: 18-AUG-97 05:06:57

RT	Area	Ar/Ht	Respon	ECL	Name	%	Comment 1	Comment 2
1.439	90928064	0.024	...	7.057	SOLVENT PEAK	...	< min rt	
1.524	3568	0.016	...	7.250	...	...	< min rt	
7.369	9088	0.039	1.005	14.621	15:0 ISO	23.74	ECL deviates -0.000	Reference -0.005
7.500	14152	0.039	1.002	14.711	15:0 ANTEISO	36.85	ECL deviates 0.000	Reference -0.004
8.905	920	0.040	0.971	15.625	16:0 ISO	2.32	ECL deviates -0.001	Reference -0.006
9.115	800	0.046	0.967	15.758	16:1 w11c	2.01	ECL deviates 0.001	
9.498	2792	0.044	0.959	16.001	16:0	6.96	ECL deviates 0.001	Reference -0.004
10.142	944	0.047	0.947	16.387	ISO 17:1 w10c	2.32	ECL deviates -0.000	
10.547	5384	0.044	0.940	16.630	17:0 ISO	13.14	ECL deviates 0.001	Reference -0.004
10.700	5200	0.046	0.937	16.721	17:0 ANTEISO	12.66	ECL deviates -0.001	Reference -0.006

Solvent Ar	Total Area	Named Area	% Named	Total Annt	Nbr Ref	ECL Deviation	Ref ECL Shift
90928064	39280	39280	100.00	38487	6	0.001	0.005
TOTAL AREA LESS THAN 50000.							

ISBA [Rev 3.90] Bacillus 0.763
 *B. subtilis** 0.763
 B. amyloliquefaciens 0.665 (Bacillus subtilis group)
 Paenibacillus 0.417 (Bacillus)
 P. macerans 0.417 (Bacillus)
 P. n. GC subgroup A 0.417 (Bacillus)
 CLIN [Rev 3.90] Bacillus 0.750
 B. subtilis 0.750

Comparison with ISBA [Rev 3.90]: *Bacillus-subtilis**

Distance: 2.614

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
14:0 ISO	x+-																				
15:0 ISO																					
15:0 ANTEISO																					
16:0 ISO	--x+-																				
16:1 w11c*-																				
16:0	---x-																				
ISO 17:1 w10c*-																				
17:0 ISO	---x-																				
17:0 ANTEISO	---																				
SUMMED FEATURE 5	x+-																				

Comparison with ISBA (Rev 3.90): *Bacillus-amyloliquefaciens*(*Bacillus subtilis* group)

Distance: 3.208

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
14:0 ISO.	x+																				
14:0.	x+																				
15:0 ISO.						x															
15:0 ANTEISO.																					
16:0 ISO.		x+																			
16:1 w1lc		x+																			
16:0.																					
ISO 17:1 w10c		x+																			
17:0 ISO.																					
17:0 ANTEISO.																					

Comparison with CLIM (Rev 3.90): *Bacillus-subtilis*

Distance: 2.806

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
14:0 ISO.	x+																				
15:0 ISO.																					
15:0 ANTEISO.																					
16:0 ISO.		x+																			
16:1 w1lc		x+																			
16:0.																					
ISO 17:1 w10c		x+																			
17:0 ISO.																					
17:0 ANTEISO.																					
18:1 w9c.		x+																			
18:0.		x+																			
SUMMED FEATURE 5.		x+																			
SUMMED FEATURE 6.		x+																			

Comparison with CLIM (Rev 3.90): *Bacillus-licheniformans*

Distance: 7.228

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
15:0 ISO.						x															
15:0 ANTEISO.																					
16:0 ISO.		x+																			
16:1 w1lc		x+																			
16:0.																					
ISO 17:1 w10c		x+																			
17:0 ISO.																					
17:0 ANTEISO.																					
18:0.		x+																			

ID: 1 4881 ECOLOGY & ENVIRON. 3
 Bottle: 4 SAMPLE [AEROBE]

Date of run: 18-AUG-97 05:37:14

RT	Area	Ar/Ht	Respon	ECL	Name	%	Comment 1	Comment 2
0.634	1472	0.153	...	5.230	...	...	< min rt	
1.439	90482368	0.024	...	7.060	SOLVENT PEAK	...	< min rt	
1.520	4608	0.010	...	7.244	...	...	< min rt	
5.987	2584	0.038	1.041	13.617	14:0 ISO	5.52	ECL deviates -0.001	Reference -0.006
6.472	864	0.041	1.027	14.001	14:0	1.82	ECL deviates 0.001	Reference -0.004
7.368	19976	0.039	1.005	14.620	15:0 ISO	41.24	ECL deviates -0.001	Reference -0.005
7.498	18200	0.039	1.002	14.710	15:0 ANTEISO	37.46	ECL deviates -0.001	Reference -0.005
8.907	904	0.045	0.971	15.626	16:0 ISO	1.80	ECL deviates 0.000	Reference -0.004
9.114	1296	0.045	0.967	15.757	16:1 w/c	2.57	ECL deviates 0.000	
9.498	1832	0.045	0.959	16.000	16:0	3.61	ECL deviates 0.000	Reference -0.004
10.545	1432	0.045	0.940	16.629	17:0 ISO	2.76	ECL deviates -0.000	Reference -0.005
10.700	1664	0.047	0.937	16.722	17:0 ANTEISO	3.20	ECL deviates -0.000	Reference -0.006

Solvent Hr	Total Area	Named Area	% Named	Total Amt	Nbr Ref	ECL Deviation	Ref ECL Shift
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90482368	48752	48752	100.00	48690	8	0.001	0.005
TOTAL AREA LESS THAN 50000.							

TSBA [Rev 3.90] Bacillus 0.824
 B. megaterium 0.824
 B. m. GC subgroup A 0.824
 B. linterosporus 0.759
 CLIN [Rev 3.90] Bacillus 0.727
 B. megaterium 0.727

Comparison with TSBA [Rev 3.90]: Bacillus-megaterium-GC subgroup A

Distance: 2.210

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
14:0 ISO																					
14:0																					
15:0 ISO																					
15:0 ANTEISO																					
16:1 w/c alcohol																					
16:0 ISO																					
16:1 w/c																					
16:0																					
ISO 17:1 w/c																					
17:0 ISO																					
17:0 ANTEISO																					
SUMMED FEATURE 5																					

Comparison with TSA [Rev 3.90]: *Bacillus-laterosporus*

Distance: 2.638

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
13:0 ISO.	x+-																				
14:0 ISO.		+-x																			
14:0.		x+-																			
15:0 ISO.									-----x-----												
15:0 ANTEISO.									-----x-----												
15:0.	*																				
16:1 w7c alcohol.	x+																				
16:0 ISO.		-*																			
16:1 w11c		+-x																			
16:0.		-i- x																			
ISO 17:1 w10c	x+-																				
17:0 ISO.		+-x																			
17:0 ANTEISO.		+-x																			

Comparison with CLIN [Rev 3.90]: *Bacillus-megaaterium*

Distance: 3.013

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
14:0 ISO.		x+-																			
14:0.		-x-																			
15:0 ISO.									-----x-----												
15:0 ANTEISO.									-----x-----												
15:0.	x+-																				
16:0 ISO.		-*																			
16:1 w11c		+-x																			
16:0.		x+-																			
17:0 ISO.		+-x																			
17:0 ANTEISO.		+-x																			
18:1 w9c.	x+-																				
18:0.	x+-																				

Comparison with CLIN [Rev 3.90]: *Micrococcus-lylae-6C subgroup B*

Distance: 6.237

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
14:0 ISO.		+-x																			
14:0.		-x-																			
15:0 ISO.									-----x-----												
15:0 ANTEISO.									-----x-----												
16:1 ISO H.	x+-																				
16:0 ISO.		x+-																			
16:1 w11c		+-x																			
16:0.		+-x																			
ANTEISO 17:1 w9c.	x+-																				
17:0 ISO.		+-x																			
17:0 ANTEISO.		-x-																			
18:1 w9c.	x+-																				
18:0.	x+-																				
SUMMED FEATURE 2.	x+-																				
SUMMED FEATURE 4.	x+-																				

ID: 70 4881-4 Ecology & Environment Date of run: 19-AUG-97 03:47:28
 Bottle: 3 SAMPLE [AEROBE]

RT	Area	Ar/Ht	Respon	ECL	Name	%	Comment 1	Comment 2
1.436	89714240	0.024	...	7.056	SOLVENT PEAK	...	< min rt	
1.521	2528	0.011	...	7.249	...	...	< min rt	
4.806	1232	0.034	1.081	12.612	13:0 ISO	0.76	ECL deviates 0.000	Reference -0.001
5.984	912	0.037	1.044	13.617	14:0 ISO	0.54	ECL deviates -0.001	Reference -0.002
6.468	3080	0.038	1.029	14.000	14:0	1.81	ECL deviates 0.000	Reference 0.000
7.368	112248	0.039	1.007	14.623	15:0 ISO	64.65	ECL deviates 0.002	Reference 0.001
7.496	14384	0.039	1.004	14.711	15:0 ANTEISO	8.26	ECL deviates 0.000	Reference -0.001
8.523	1296	0.044	0.980	15.385	16:1 w7c alcohol	0.73	ECL deviates -0.001	
8.902	768	0.046	0.972	15.625	16:0 ISO	0.43	ECL deviates -0.001	Reference -0.003
9.110	7336	0.043	0.967	15.756	16:1 w11c	4.06	ECL deviates -0.001	
9.494	3576	0.044	0.959	15.999	16:0	1.96	ECL deviates -0.001	Reference -0.003
9.944	960	0.047	...	16.270	...	...
10.137	12952	0.045	0.946	16.386	ISO 17:1 w10c	7.01	ECL deviates -0.001	
10.290	6856	0.053	0.944	16.478	Sum In Feature 5	3.70	ECL deviates 0.002	17:1 ISO I/ANTEI B
10.543	5864	0.044	0.939	16.630	17:0 ISO	3.15	ECL deviates 0.001	Reference -0.002
10.697	5408	0.045	0.936	16.722	17:0 ANTEISO	2.94	ECL deviates 0.000	Reference -0.003
*****	6856	...	...	...	SUMMED FEATURE 5	3.70	17:1 ISO I/ANTEI B	17:1 ANTEISO B/i I

Solvent Ar	Total Area	Named Area	% Named	Total Amt	Nbr Ref	ECL Deviation	Ref ECL Shift
99714240	176952	175992	99.46	174842	9	0.001	0.002

ISBA [Rev 3.90] Bacillus 0.286
 B. badius 0.286
 B. sphaericus 0.197
 B. s. GC subgroup IV* 0.197
 CLIM [Rev 3.90] * NO MATCH *

Comparison with ISBA [Rev 3.90]: Bacillus-badius Distance: 5.618

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
13:0 ISO																					
14:0 ISO																					
14:0																					
15:0 ISO																					
15:0 ANTEISO																					
15:0																					
16:1 w7c alcohol																					
16:0 ISO																					
16:1 w11c																					
16:0																					
ISO 17:1 w10c																					
17:0 ISO																					
17:0 ANTEISO																					
SUMMED FEATURE 4																					
SUMMED FEATURE 5																					

Comparison with ISBA [Rev 3.90]: *Bacillus-sphaericus*-6C subgroup IU*

Distance: 6.399

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
13:0 ISO.	+x-																				
14:0 ISO.	-x-+-																				
14:0.	-+x																				
15:0 ISO.									-----x-												
15:0 ANTEISO. . . .		-----x-																			
15:0.	x+																				
16:1 w7c alcohol. .	.x	-----																			
16:0 ISO.	x	-----																			
16:1 w11c . . . . .	.-+x.																				
16:0.	-+x																				
ISO 17:1 w10c . . .	+- .x																				
17:0 ISO.	---x+																				
17:0 ANTEISO. . . .	.-+x																				
SUMMED FEATURE 5. .	+- x.																				

Comparison with CLIN [Rev 3.90]: *Staphylococcus-delphini**

Distance: 17.589

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
13:0 ISO.	-*																				
14:0 ISO.	+x																				
14:0.	-+x																				
15:0 ISO.									-----					x							
15:0 ANTEISO. . . .		x	-----																		
16:1 w7c alcohol. .	+x-																				
16:0 ISO.	x+-																				
16:1 w11c	+-- x.																				
16:0. . . . .	.-x+-																				
ISO 17:1 w10c . . .	+-- .x																				
17:0 ISO. . . . .	.x	-----																			
17:0 ANTEISO. . . .	.-x+-																				
18:1 w9c.	x+-																				
18:0.	x	-----																			
19:0 ISO.	x+-																				
20:2 w5,9c.	*																				
20:1 w9c.	x+-																				
20:0.	x	-----																			
SUMMED FEATURE 5. .	+-- x?																				
SUMMED FEATURE 6. .	x+-																				

MTBI DOS SYSTEM

19-AUG-97 12:02:29

Continue: 70

4881-4 Ecology & Environment

[AEROBE] 19-AUG-97 03:47:28

Comparison with CLIN (Rev 3.901): Micrococcus-lylae-6C subgroup B

Distance: 18.157

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
13:0 ISO.
14:0 ISO.
14:0.
15:0 ISO.
15:0 ANTEISO.
16:1 w7c alcohol.
16:1 ISO H.
16:0 ISO.
16:1 w11c
16:0.
ISO 17:1 w10c
ANTEISO 17:1 w9c.
17:0 ISO.
17:0 ANTEISO.
18:1 w9c.
18:0.
SUMMED FEATURE 2.
SUMMED FEATURE 4.
SUMMED FEATURE 5.

ID: 5 1881 ECOLOGY & ENVIRON. 5
 Bottle: 5 SAMPLE [AEROBIC]

Date of run: 18-AUG-97 06:07:30

RT	Area	Ar/Ht	Respon	ECL	Name	%	Comment 1	Comment 2
1.438	89905152	0.024	...	7.059	SOLVENT PEAK	...	< min rt	
1.518	3912	0.009	...	7.241	...	...	< min rt	
1.596	712	0.024	...	7.418	...	...	< min rt	
3.295	464	0.028	1.142	10.919	Sum In Feature 3	0.63	ECL deviates 0.005	12:0 ALDE ?
6.469	2960	0.041	1.027	14.000	14:0	3.60	ECL deviates -0.000	Reference -0.006
8.232	1872	0.044	0.985	15.202	14:0 20H	2.18	ECL deviates -0.003	
8.680	6432	0.043	0.976	15.485	Sum In Feature 3	7.43	ECL deviates 0.003	16:1 ISO I/14:0 30H
9.205	29608	0.044	0.965	15.817	Sum In Feature 4	33.84	ECL deviates 0.000	16:1 w7c/15 iso 20H
9.495	25176	0.043	0.959	16.001	16:0	28.60	ECL deviates 0.001	Reference -0.006
10.972	3456	0.050	0.932	16.887	17:0 CYCLO	3.81	ECL deviates -0.001	Reference -0.009
12.563	18592	0.048	0.904	17.821	Sum In Feature 7	19.90	ECL deviates -0.001	18:1 w7c/w9t/w12t
*****	6896	...	...	...	SUMMED FEATURE 3	8.06	12:0 ALOE ?	unknown 10.920
*****	...	...	...	...	...	...	16:1 ISO I/14:0 30H	14:0 30H/16:1 ISO I
*****	29608	...	...	...	SUMMED FEATURE 4	33.84	16:1 w7c/15 iso 20H	15:0 ISO 20H/16:1w7c
*****	18592	...	...	...	SUMMED FEATURE 7	19.90	18:1 w7c/w9t/w12t	18:1 w9c/w12t/w7c
*****	...	...	...	...	...	...	18:1 w12t/w9t/w7c	

Solvent Ar	Total Area	Named Area	% Named	Total Amnt	Nbr Ref	ECL Deviation	Ref ECL Shift
89905152	88560	88560	100.00	84453	3	0.002	0.007

TSBA [Rev 3.90] Alcaligenes	0.765
A. eutrophus	0.765
A. xylosoxydans	0.405
A. x. denitrificans*	0.405
A. x. xylosoxydans*	0.316
A. piechaudii*	0.404
Burkholderia	0.653 (Pseudomonas pickettii)
B. pickettii	0.653 (Pseudomonas pickettii)
Pantoea	0.456 (Entb. agglomerans, Erwinia herbicola)
P. agglomerans*	0.456 (Entb. agglomerans, Erwinia herbicola)
CLIN [Rev 3.90] Burkholderia	0.650 (Pseudomonas pickettii)
B. pickettii	0.650 (Pseudomonas pickettii)
Arcobacter	0.327 (Campylobacter cryaerophila, CO2)
A. cryaerophila	0.327 (Campylobacter cryaerophila, CO2)

Comparison with TSBA [Rev 3.90]: Alcaligenes-eutrophus

Distance: 2.598

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
14:0																					
14:0 20H																					
16:0																					
17:0 CYCLO																					
18:0																					
SUMMED FEATURE 3																					
SUMMED FEATURE 4																					
SUMMED FEATURE 7																					

Comparison with TSBA [Rev 3.90]: Burkholderia-pickettii (Pseudomonas pickettii)

Distance: 3.280

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
14:0. ....	.	*	-	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14:0 20H.	+	-	x	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16:0. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17:0 CYCLO. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16:1 20H.	x	+	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18:0.	x	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19:0 CYCLO w8c.	x	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18:1 20H.	x	+	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SUMMED FEATURE 3. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SUMMED FEATURE 4. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SUMMED FEATURE 7. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Comparison with CLIN [Rev 3.90]: Burkholderia-pickettii(Pseudomonas pickettii)

Distance: 3.501

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
14:0. ....	.	x	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15:0.	x	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14:0 20H.	+	+	x	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16:0. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17:0 CYCLO. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17:0. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16:1 20H.	x	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16:0 20H.	x	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18:1 w9c. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18:0.	x	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18:1 20H.	x	+	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SUMMED FEATURE 3. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SUMMED FEATURE 4. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SUMMED FEATURE 7. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Comparison with CLIN [Rev 3.90]: Arcobacter-cryaerophila(Campylobacter cryaerophila, C02)

Distance: 5.642

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
12:0.	x	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14:0. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14:0 20H.	+	-	x	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16:0. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17:0 CYCLO. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18:0.	x	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SUMMED FEATURE 3. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SUMMED FEATURE 4. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SUMMED FEATURE 7. ....	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

ID: 0 4881 ECOLOGY & CHUIRON. 6
Bottle: 6 SAMPLE [AEROBIC]

Date of run: 18-AUG-97 06:37:49

RT	Area	Ar/Ht	Respon	ECL	Name	%	Comment 1	Comment 2
1.438	89041600	0.024	...	7.059	SOLVENT PEAK	...	< min rt	
1.523	1632	0.011	...	7.252	...	...	< min rt	
3.688	2896	0.030	1.122	11.421	10:0 30H	2.54	ECL deviates -0.002	
4.163	3464	0.034	1.100	12.000	12:0	2.98	ECL deviates -0.000	Reference -0.007
5.428	5336	0.036	1.056	13.175	12:0 20H	4.41	ECL deviates -0.003	
5.777	5040	0.037	1.046	13.452	12:0 30H	4.12	ECL deviates -0.003	
6.470	616	0.041	1.027	14.001	14:0	0.49	ECL deviates 0.001	Reference -0.006
9.204	22248	0.043	0.965	15.816	Sum In Feature 4	16.79	ECL deviates -0.001	16:1 w7c/15 iso.20H
9.495	44176	0.042	0.959	16.000	16:0	33.14	ECL deviates -0.000	Reference -0.006
10.974	27664	0.046	0.932	16.887	17:0 CYCLO	20.15	ECL deviates -0.001	Reference -0.007
12.564	16792	0.046	0.904	17.822	Sum In Feature 7	11.87	ECL deviates -0.000	18:1 w7c/w9t/w12t
12.859	1240	0.046	0.899	18.000	18:0	0.87	ECL deviates 0.000	Reference -0.006
14.409	3832	0.049	0.875	18.900	19:0 CYCLO w8c	2.62	ECL deviates 0.000	Reference -0.007
*****	22248	...	...	...	SUMMED FEATURE 4	16.79	16:1 w7c/15 iso 20H	15:0 ISO 20H/16:1w7c
*****	16792	...	...	...	SUMMED FEATURE 7	11.87	18:1 w7c/w9t/w12t	18:1 w9c/w12t/w7c
*****	...	...	...	...	...	...	18:1 w12t/w9t/w7c	

Solvent Ar	Total Area	Named Area	% Named	Total Annt	Nbr Ref	ECL Deviation	Ref ECL Shift
89041600	133304	133304	100.00	127881	6	0.002	0.007

ISBA [Rev 3.90] Pseudomonas	0.417
P. putida	0.417
P. p. biotype B	0.417
P. p. biotype A	0.322
P. chlororaphis	0.232 (Pseudomonas aureofaciens)
CLIN [Rev 3.90] Pseudomonas	0.704
P. putida	0.704
P. p. biotype A*	0.704
P. p. biotype B	0.390
P. fluorescens	0.683

Comparison with ISBA [Rev 3.90]: Pseudomonas-putida-biotype B

Distance: 4.698

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
10:0 30H	-x+																				
12:0	-x+																				
12:0 20H	-x+																				
12:0 30H	-x+																				
14:0	*																				
16:0																					
17:0 CYCLO					x																
18:0	*																				
19:0 CYCLO w8c	-x+																				
SUMMED FEATURE 4					x																
SUMMED FEATURE 7				x+																	

Comparison with ISBA [Rev 3.90]: *Pseudomonas-putida*-biotype B

Distance: 5.351

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
10:0 30H.	---	x+	---																		
12:0.	---	x-	---																		
12:0 20H.	---	x+	---																		
12:0 30H.	---	x-	---																		
14:0.	*	---																			
16:0.									---	x											
17:0 CYCLO.	---	x	---																		
18:0.	*	---																			
19:0 CYCLO w8c.	+	x	---																		
SUMMED FEATURE 4.					x	---															
SUMMED FEATURE 7.			x	---																	

Comparison with CLIN [Rev 3.90]: *Pseudomonas-putida*-biotype B*

Distance: 3.160

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
10:0 30H.	---	x-	---																		
12:0.	---	x-	---																		
12:0 20H.	---	x+	---																		
12:0 30H.	---	x-	---																		
14:0.	x+	---																			
15:0.	*	---																			
16:0.									---	x											
17:0 CYCLO.	---	x	---																		
17:0.	*	---																			
18:1 w9c.	x+	---																			
18:0.	+	---																			
19:0 CYCLO w8c.	+	x	---																		
SUMMED FEATURE 4.					---	x	---														
SUMMED FEATURE 7.			---	x	---																

Comparison with CLIN [Rev 3.90]: *Pseudomonas-fluorescens*

Distance: 3.295

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
10:0 30H.	---	x-	---																		
12:0.	---	x-	---																		
12:0 20H.	---	x+	---																		
12:0 30H.	---	x+	---																		
14:0.	x+	---																			
15:0.	*	---																			
16:0.									x	---											
17:0 CYCLO.	---	x	---																		
17:0.	*	---																			
18:1 w9c.	x+	---																			
18:0.	+	---																			
19:0 CYCLO w8c.	+	x	---																		
SUMMED FEATURE 4.					---	x	---														
SUMMED FEATURE 7.			---	x	---																

ID: 7 1881 ECOLOGY & ENVIRON. 7 Date of run: 18-AUG-97 07:08:09
 Bottle: 7 SAMPLE: [AEROBE]

RT	Area	Ar/Ht	Respon	ECL	Name	%	Comment 1	Comment 2
1.438	90867264	0.024	...	7.059	SOLVENT PEAK	...	(min rt	
1.523	1544	0.010	...	7.252	...	...	(min rt	
5.986	752	0.038	1.041	13.618	14:0 ISO	1.01	ECL deviates -0.000	Reference -0.007
6.469	664	0.042	1.027	14.001	14:0	0.88	ECL deviates 0.001	Reference -0.006
7.365	7472	0.039	1.005	14.621	15:0 ISO	9.67	ECL deviates -0.000	Reference -0.007
7.496	39160	0.040	1.002	14.711	15:0 ANTEISO	50.51	ECL deviates 0.000	Reference -0.007
8.903	6120	0.042	0.971	15.626	16:0 ISO	7.65	ECL deviates 0.000	Reference -0.007
9.109	1128	0.044	0.967	15.756	16:1 wllc	1.40	ECL deviates -0.001	
9.494	7248	0.044	0.959	16.000	16:0	8.95	ECL deviates -0.000	Reference -0.007
10.543	6352	0.045	0.940	16.629	17:0 ISO	7.68	ECL deviates 0.000	Reference -0.007
10.697	10160	0.045	0.937	16.722	17:0 ANTEISO	12.25	ECL deviates -0.000	Reference -0.007

Solvent Ar	Total Area	Named Area	% Named	Total Amt	Mbr Ref	ECL Deviation	Ref ECL Shift
90867264	79056	79056	100.00	77694	8	0.000	0.007

TSBA [Rev 3.90] Paenibacillus 0.362 (Bacillus)
 P. polymyxa 0.362 (Bacillus)
 P. alvei* 0.288 (Bacillus)
 Micrococcus 0.272
 M. halobius* 0.272
 Bacillus 0.263
 B. brevis 0.263
 B. atrophaceus 0.166 (was B. subtilis variety niger)
 CLIN [Rev 3.90] Bacillus 0.510
 B. circulans 0.510
 B. coagulans* 0.331

Comparison with TSBA [Rev 3.90]: Paenibacillus-polymyxa(Bacillus)

Distance: 5.064

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
14:0 ISO	---																				
14:0	-x+																				
15:0 ISO			---x																		
15:0 ANTEISO											-----x-----										
16:0 ISO			---x---																		
16:1 wllc		-x+																			
16:0			---x---																		
17:0 ISO			---x																		
17:0 ANTEISO			---x																		

Comparison with ISBA [Rev 3.90]: *Paenibacillus-alvei**(*Bacillus*)

Distance: 5.605

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
14:0 ISO.	+	x	-																		
14:0.		x	+	-																	
15:0 ISO.			x	-----	+	-----															
15:0 ANTEISO.											-----	+	x	-----							
16:0 ISO.		+	+	-	x																
16:1 wllc.		x	+	+	-----																
16:0.			x	-----	+	-----															
ISO 17:1 wllc.	x	+																			
17:0 ISO.		+	+	-----	x																
17:0 ANTEISO.		+	+	-----	x																

Comparison with CLIN [Rev 3.90]: *Bacillus-circulans*

Distance: 4.376

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
14:0 ISO.		x	+	-----																	
14:0.		x	+	-----																	
15:0 ISO.			x	-----	+	-----															
15:0 ANTEISO.											-----	+	x	-----							
15:0.	x	+	-																		
16:0 ISO.		+	+	-----	x																
16:1 wllc.		x	+	-																	
16:0.			x	-----	+	-----															
17:0 ISO.		+	+	-	x																
17:0 ANTEISO.		+	+	-----	+	-----	x														
18:1 wllc.	x	+	-																		
18:0.	x	+	+	-----																	

Comparison with CLIN [Rev 3.90]: *Bacillus-coagulans**

Distance: 5.604

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
14:0 ISO.		x	+	-----																	
14:0.		x	+	-----																	
15:0 ISO.			x	-----	+	-----															
15:0 ANTEISO.											-----	+	x	-----							
16:0 ISO.		+	+	-----	x																
16:1 wllc.		x	+	-																	
16:0.			x	-----	+	-----															
17:0 ISO.		+	+	-	x																
17:0 ANTEISO.		+	+	-----	+	-----	x														
18:0.	x	+	+	-----																	

Endpoint Assay Data

MOLECULAR DEVICES CORP.

Template Display

DATA FILE: DATA 8/16 10_50_03
 DESCRIPTION: 4881 Ecology & Environ. 7 strains vs. free product
 PROTOCOL:
 DESCRIPTION:

PAGE: 1

PRINTED: 8/16/97

	1	2	3	4	5	6	7	8	9	10	11	12
A	□ BL	□ BL	□ BL	□ BL	! CNT08	! CNT08	! CNT08	! CNT08	! CNT09	! CNT09	! CNT09	! CNT09
B	! CNT01	! CNT01	! CNT01	! CNT01	? UNK01	? UNK01	? UNK01	? UNK01	! CNT10	! CNT10	! CNT10	! CNT10
C	! CNT02	! CNT02	! CNT02	! CNT02	? UNK02	? UNK02	? UNK02	? UNK02	! CNT11	! CNT11	! CNT11	! CNT11
D	! CNT03	! CNT03	! CNT03	! CNT03	? UNK03	? UNK03	? UNK03	? UNK03	! CNT12	! CNT12	! CNT12	! CNT12
E	! CNT04	! CNT04	! CNT04	! CNT04	? UNK04	? UNK04	? UNK04	? UNK04	! CNT13	! CNT13	! CNT13	! CNT13
F	! CNT05	! CNT05	! CNT05	! CNT05	? UNK05	? UNK05	? UNK05	? UNK05	! CNT14	! CNT14	! CNT14	! CNT14
G	! CNT06	! CNT06	! CNT06	! CNT06	? UNK06	? UNK06	? UNK06	? UNK06	! CNT15	! CNT15	! CNT15	! CNT15
H	! CNT07	! CNT07	! CNT07	! CNT07	? UNK07	? UNK07	? UNK07	? UNK07	! CNT16	! CNT16	! CNT16	! CNT16

Group Type	Name	Std. Value/Dil. Factor	Wells
Blank	BL		A1, A2, A3, A4
Control	CNT01	1.000	B1, B2, B3, B4
	CNT02	1.000	C1, C2, C3, C4
	CNT03	1.000	D1, D2, D3, D4
	CNT04	1.000	E1, E2, E3, E4
	CNT05	1.000	F1, F2, F3, F4
	CNT06	1.000	G1, G2, G3, G4
	CNT07	1.000	H1, H2, H3, H4
	CNT08	1.000	A5, A6, A7, A8
	CNT09	1.000	A9, A10, A11, A12
	CNT10	1.000	B9, B10, B11, B12
	CNT11	1.000	C9, C10, C11, C12
	CNT12	1.000	D9, D10, D11, D12
	CNT13	1.000	E9, E10, E11, E12
	CNT14	1.000	F9, F10, F11, F12
	CNT15	1.000	G9, G10, G11, G12
	CNT16	1.000	H9, H10, H11, H12
Unknown	UNK01	1.000	B5, B6, B7, B8
	UNK02	1.000	C5, C6, C7, C8
	UNK03	1.000	D5, D6, D7, D8
	UNK04	1.000	E5, E6, E7, E8

MOLECULAR DEVICES CORP.
Raw Data (Plate)

DATA FILE: DATA 8/16 10_50_03
DESCRIPTION: 4881 Ecology & Environ. 7 strains vs. free product
PROTOCOL:
DESCRIPTION:
MODE: Endpoint AUTOMIX: ON
WAVELENGTH: 590

PRINTED: 8/16/97

CALIBRATION: ON

Optical Density

	1	2	3	4	5	6	7	8	9	10	11	12
A	0.077	0.080	0.080	0.095	0.431	0.444	0.370	0.364	0.089	0.074	0.076	0.080
B	0.292	0.256	0.264	0.294	0.425	0.349	0.349	0.473	0.294	0.282	0.293	0.294
C	0.299	0.364	0.331	0.311	0.528	0.458	0.509	0.458	0.377	0.397	0.427	0.419
D	0.406	0.418	0.422	0.415	0.619	0.559	0.600	0.598	0.479	0.468	0.472	0.455
E	0.195	0.170	0.158	0.160	0.427	0.382	0.420	0.483	0.194	0.183	0.179	0.177
F	0.930	0.402	0.351	0.379	1.234	1.523	1.250	1.185	2.425	2.466	2.357	2.521
G	0.300	0.319	0.301	0.278	0.625	0.555	0.563	0.624	2.881	2.810	2.811	2.918
H	0.376	0.386	0.382	0.380	0.584	0.574	0.578	0.564	0.442	1.788	0.422	0.411

MOLECULAR DEVICES CORP.
Raw Data (Plate)

DATA FILE: DATA 8/16 10_50_03
DESCRIPTION: 4881 Ecology & Environ. 7 strains vs. free product
PROTOCOL:
DESCRIPTION:
MODE: Endpoint AUTOMIX: ON
WAVELENGTH: 590

PRINTED: 8/16/97

CALIBRATION: ON

OD with Plate Blank Subtracted

	1	2	3	4	5	6	7	8	9	10	11	12
A	0#006	0#003	0#003	0#012	0.348	0.361	0.287	0.281	0.006	-0.009	-0.007	-0.003
B	0.209	0.173	0.181	0.211	0.342	0.266	0.266	0.390	0.211	0.199	0.210	0.211
C	0.216	0.281	0.248	0.228	0.445	0.375	0.426	0.375	0.294	0.314	0.344	0.336
D	0.323	0.335	0.339	0.332	0.536	0.476	0.517	0.515	0.396	0.385	0.389	0.372
E	0.112	0.087	0.075	0.077	0.344	0.299	0.337	0.400	0.111	0.100	0.096	0.094
F	0.847	0.319	0.268	0.296	1.151	1.440	1.167	1.102	2.342	2.383	2.274	2.438
G	0.217	0.236	0.218	0.195	0.542	0.472	0.480	0.541	2.798	2.727	2.728	2.835
H	0.293	0.303	0.299	0.297	0.501	0.491	0.495	0.481	0.359	1.705	0.339	0.328

MOLECULAR DEVICES CORP.
Raw Data (Report)
(Plate Blank Subtracted)

DATA FILE: DATA 8/16 10_50_03
DESCRIPTION: 4881 Ecology & Environ. 7 strains vs. free product
PROTOCOL:
DESCRIPTION:
MODE: Endpoint AUTOMIX: ON
WAVELENGTH: 590

PAGE: 1

PRINTED: 8/16/97

CALIBRATION: ON

PLATE BLANK	Mean OD	Std Dev	CV	Well	OD
BL	0.083	0.008	9.788	A1	0.077
				A2	0.080
				A3	0.080
				A4	0.095

CONTROLS	Mean OD	Std Dev	CV	Well	OD
CNT01	0.194	0.019	9.999	B1	0.209
				B2	0.173
				B3	0.181
				B4	0.211
CNT02	0.243	0.028	11.68	C1	0.216
				C2	0.281
				C3	0.248
				C4	0.228
CNT03	0.332	0.007	2.047	D1	0.323
				D2	0.335
				D3	0.339
				D4	0.332
CNT04	0.088	0.017	19.37	E1	0.112
				E2	0.087
				E3	0.075
				E4	0.077
CNT05	0.432	0.277	64.07	F1	0.847
				F2	0.319
				F3	0.268
				F4	0.296
CNT06	0.216	0.017	7.752	G1	0.217
				G2	0.236
				G3	0.218
				G4	0.195
CNT07	0.298	0.004	1.397	H1	0.293
				H2	0.303
				H3	0.299
				H4	0.297
CNT08	0.319	0.041	12.88	A5	0.348
				A6	0.361
				A7	0.287
				A8	0.281
CNT09	-0.003	0.007	204.7	A9	0.006
				A10	-0.009
				A11	-0.007
				A12	-0.003

MOLECULAR DEVICES CORP.

Raw Data (Report)
(Plate Blank Subtracted)

DATA FILE: DATA 8/16 10_50_03
DESCRIPTION: 4881 Ecology & Environ. 7 strains vs. free product
PROTOCOL:
DESCRIPTION:
MODE: Endpoint
WAVELENGTH: 590

PAGE: 2

PRINTED: 8/16/97

AUTOMIX: ON

CALIBRATION: ON

CONTROLS	Mean OD	Std Dev	CV	Well	OD
CNT10	0.208	0.006	2.817	B9	0.211
				B10	0.199
				B11	0.210
				B12	0.211
CNT11	0.322	0.023	7.009	C9	0.294
				C10	0.314
				C11	0.344
				C12	0.336
CNT12	0.386	0.010	2.616	D9	0.396
				D10	0.385
				D11	0.389
				D12	0.372
CNT13	0.100	0.008	7.569	E9	0.111
				E10	0.100
				E11	0.096
				E12	0.094
CNT14	2.359	0.069	2.930	F9	2.342
				F10	2.383
				F11	2.274
				F12	2.438
CNT15	2.772	0.054	1.932	G9	2.798
				G10	2.727
				G11	2.728
				G12	2.835
CNT16	0.683	0.682	99.83	H9	0.359
				H10	1.705
				H11	0.339
				H12	0.328

UNKNOWN	Mean OD	Std Dev	CV	Well	OD
UNK01	0.316	0.061	19.29	B5	0.342
				B6	0.266
				B7	0.266
				B8	0.390
UNK02	0.405	0.036	8.829	C5	0.445
				C6	0.375
				C7	0.426
				C8	0.375
UNK03	0.511	0.025	4.927	D5	0.536
				D6	0.476
				D7	0.517
				D8	0.515

MOLECULAR DEVICES CORP.

Raw Data (Report)
(Plate Blank Subtracted)

DATA FILE: DATA 8/16 10_50_03
DESCRIPTION: 4881 Ecology & Environ. 7 strains vs. free product
PROTOCOL:
DESCRIPTION:
MODE: Endpoint AUTOMIX: ON
WAVELENGTH: 590

PAGE: 3

PRINTED: 8/16/97

CALIBRATION: ON

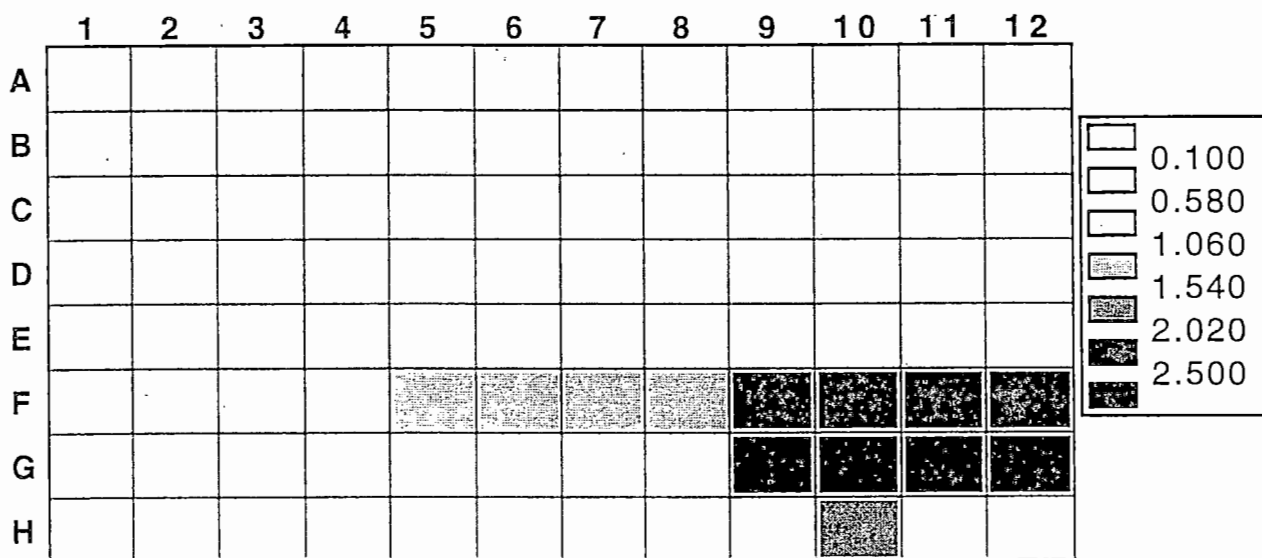
UNKNOWN	Mean OD	Std Dev	CV	Well	OD
UNK04	0.345	0.042	12.07	E5	0.344
				E6	0.299
				E7	0.337
				E8	0.400
UNK05	1.215	0.153	12.55	F5	1.151
				F6	1.440
				F7	1.167
				F8	1.102
UNK06	0.509	0.038	7.461	G5	0.542
				G6	0.472
				G7	0.480
				G8	0.541
UNK07	0.492	0.008	1.709	H5	0.501
				H6	0.491
				H7	0.495
				H8	0.481

MOLECULAR DEVICES CORP.
Gray Scale (Plate)

DATA FILE: DATA 8/16 10_50_03
DESCRIPTION: 4881 Ecology & Environ. 7 strains vs. free product
PROTOCOL:
DESCRIPTION:
MODE: Endpoint AUTOMIX: ON
WAVELENGTH: 590

PRINTED: 8/16/97

CALIBRATION: ON



High Limit = 2.500

Low Limit = 0.100

Warranty And Limits Of Liability

In accepting analytical work, we warrant the accuracy of test results under the conditions employed in the laboratory. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied. We disclaim any other warranties, expressed or implied, including a Warranty of Fitness for Particular Purpose and Warranty of Merchantability. We accept no legal responsibility for the purposes for which the client uses the test results.

L

EE/CA Cost Estimate Information




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Table 6-2

REMOVAL ACTION COST ANALYSIS - ALTERNATIVE S&W1
24-INCH PERMEABLE SOIL COVER
ENGINEERING EVALUATION/COST ANALYSIS
JENNISON-WRIGHT
GRANITE CITY, ILLINOIS

Reference

DC01

DC02

DC03

DC04

Hank's*

17 04 0101 ECHOS

Barbier*

33 08 0511

Hank's*

Hank's*

Direct Capital Costs				
Item Description	Quantity	Unit	Cost/Unit	Cost
Field Overhead and Oversight	6	month	\$14,646	\$87,876
Health and Safety	6	month	\$12,887	\$77,322
Mobilization and Demobilization of Site Equipment	1	lump sum	\$9,470	\$9,470
Decontamination Pad	1	lump sum	\$12,799	\$12,799
Base Preparation (Clearing and Grubbing)	16.6	acre	\$1,000	\$16,600
General Area Cleanup, Removal of Debris	16.6	acre	\$301	\$4,997
Classified Permeable Fill	53,570	cubic yard	\$8.75	\$468,738
Colored Fabric	723,100	square ft	\$0.19	\$137,389
Place and Compact Fill	53,570	cubic yard	\$1.75	\$93,748
Seed and Fertilize	16.6	acre	\$1,500	\$24,900
Subtotal Direct Capital Costs				\$933,839
Overhead and Profit (25%)				\$233,460
Total Direct Capital Costs (Rounded to Nearest \$1,000)				\$1,167,000
Indirect Capital Costs				
Engineering and Design (7%)				\$81,690
Legal Fees and License/Permit Costs (5%)				\$58,350
Construction Oversight (5%)				\$58,350
Total Indirect Capital Costs (Rounded to Nearest \$1,000)				\$198,000
Subtotal Capital Costs				\$1,365,000
Contingency Allowance (15%)				\$204,750
Total Capital Costs (Rounded to Nearest \$1,000)				\$1,570,000
Annual PRSC Costs				
Item Description	Quantity	Unit	Cost/Unit	Cost
Cover Maintenance	1	lump sum	\$16,136	\$16,136
Yearly Summary Report/Cover Inspection	1	lump sum	\$5,326	\$5,326
Subtotal Direct PRSC Costs (Rounded to Nearest \$1,000)				\$21,000
Indirect PRSC Costs				
Overhead and Profit (25%)				\$5,250
Administration (5%)				\$1,050
Insurance, Taxes, Licenses (2.5%)				\$525
Subtotal Indirect PRSC Costs				\$6,825
Subtotal Direct and Indirect PRSC Costs (Rounded to Nearest \$1,000)				\$28,000
Contingency Allowance (15%)				\$4,200
Total Annual PRSC Cost (Rounded to the nearest \$1,000)				\$32,000

30 Year Cost Projection (Assumed discount rate per year: 5%)	
Total Capital Costs	\$1,570,000
Present Worth of 30 years PRSC (Rounded to Nearest \$1,000)	\$492,000
Total Alternative Cost (Rounded to Nearest \$10,000)	\$2,060,000

* Vendor quotes are referenced on the Reference Sheet located on Page L-14.

Table 6-3

REMOVAL ACTION COST ANALYSIS - ALTERNATIVE S&W2
LANDFARM
ENGINEERING EVALUATION/COST ANALYSIS
JENNISON-WRIGHT
GRANITE CITY, ILLINOIS

Reference	Direct Capital Costs				
	Item Description	Quantity	Unit	Cost/Unit	Cost
DC01	Field Overhead and Oversight	6	month	\$14,646	\$87,876
DC02	Health and Safety	6	month	\$12,887	\$77,322
DC03	Mobilization and Demobilization of Site Equipment	1	lump sum	\$9,470	\$9,470
DC04	Decontamination Pad	1	lump sum	\$12,799	\$12,799
DC29	Removal and Disposal of Concrete and Debris	1	lump sum	\$154,456	\$154,456
DC08	Storage Shed	1	each	\$13,643	\$13,643
DC10	Construction of Landfarm Cell, (550' x 550')	1	lump sum	\$575,303	\$575,303
DC11	Construction of Ramp	1	each	\$1,812	\$1,812
DC12	Temporary Stockpile Pad and Cover (100' X 100')	1	lump sum	\$27,754	\$27,754
DC13	Drainage Collection and Treatment	1	lump sum	\$25,927	\$25,927
DC14	Construction of Retention Pond (1 million gallons, 5 foot deep)	1	lump sum	\$72,093	\$72,093
	Subtotal Direct Capital Costs				\$1,058,455
	Overhead and Profit (25%)				\$264,614
	Subtotal Direct Capital Costs (Rounded to Nearest \$1,000)				\$1,323,000
	Indirect Capital Costs				
	Engineering and Design (7%)				\$92,610
	Legal Fees and License/Permit Costs (5%)				\$66,150
	Construction Oversight (5%)				\$66,150
	Subtotal Indirect Capital Costs (Rounded to Nearest \$1,000)				\$225,000
	Subtotal Capital Costs				\$1,548,000
	Contingency Allowance (15%)				\$232,200
	Total Capital Costs (Rounded to Nearest 1,000)				\$1,780,000
	Annual PRSC Costs				
	Item Description	Quantity	Unit	Cost/Unit	Cost
DC09	Excavation and Transportation of Impacted Soil	11,000	cubic yard	\$7.52	\$82,720
E & E ASC	Confirmation Soil Sample Collection and Analysis (Excavations)	30	each	\$350.00	\$10,500
Barbier*	Backfill Material for Deep Excavations	2,100	cubic yard	\$7.00	\$14,700
Hank's*	Backfill and Compact Treated Soil and Deep Excavation Fill	13,100	cubic yard	\$1.40	\$18,340
Hank's*	Seed and Fertilize	2.8	acre	\$1,500	\$4,200
DC15	Soil Tilling, Nutrient and Water Addition	4	quarter	\$9,575	\$38,300
DC16	Confirmation Soil Sample Collection and Analysis (landfarm)	4	quarter	\$12,974	\$51,896
DC18	Air Monitoring	12	month	\$3,094	\$37,128
Nyer*	On-Site Carbon Treatment	1,002	1,000 gal	\$0.55	\$551
Granite City*	Disposal of Treated Retention Pond Water to Sanitary Sewer	1,340	100 cf	\$0.86	\$1,152
DC26	Yearly Summary Report	1	lump sum	\$7,392	\$7,392
	Subtotal Direct PRSC Costs (Rounded to Nearest \$1,000)				\$267,000
	Overhead and Profit (25%)				\$66,750
	Administration (5%)				\$13,350
	Insurance, Taxes, Licenses (2.5%)				\$6,675
	Subtotal Indirect PRSC Costs (Rounded to Nearest \$1,000)				\$87,000
	Subtotal Direct and Indirect PRSC Costs (Rounded to Nearest \$1,000)				\$354,000
	Contingency Allowance (15%)				\$53,100
	Total Annual PRSC Cost (Rounded to the nearest \$1,000)				\$407,000

5 Year Cost Projection (Assumed discount rate per year: 5%)	
Total Capital Costs	\$1,780,000
Present Worth of 5 years PRSC (Rounded to Nearest \$1,000)	\$1,762,000
Total Alternative Cost (Rounded to Nearest \$10,000)	\$3,540,000

* Vendor quotes are referenced on the Reference Sheet located on Page L-14.

Table 6-4

REMOVAL ACTION COST ANALYSIS - ALTERNATIVE S&W3
LOW TEMPERATURE THERMAL DESORPTION
ENGINEERING EVALUATION/COST ANALYSIS
JENNISON-WRIGHT
GRANITE CITY, ILLINOIS

Reference

Direct Capital Costs				
Item Description	Quantity	Unit	Cost/Unit	Cost
DC01 Field Overhead and Oversight	1	month	\$14,646	\$14,646
DC02 Health and Safety	1	month	\$12,887	\$12,887
DC03 Mobilization and Demobilization of Site Equipment	1	lump sum	\$9,470	\$9,470
DC04 Decontamination Pad	1	each	\$12,799	\$12,799
DC08 Storage Shed	1	each	\$13,643	\$13,643
DC29 Removal and Disposal of Concrete and Debris	1	lump sum	\$154,456	\$154,456
DC12 Temporary Stockpile Pad and Cover (100' X 100')	1	lump sum	\$27,754	\$27,754
Covenant* Mobe/Demobe Mobile LTTD Unit	1	lump sum	\$17,215	\$17,215
Covenant* Decon Mobile LTTD Unit	1	each	\$2,000	\$2,000
Subtotal Direct Capital Costs				\$264,870
Overhead and Profit (25%)				\$66,218
Total Direct Capital Costs (Rounded to Nearest \$1,000)				\$331,000
Indirect Capital Costs				
Engineering and Design (7%)				\$23,170
Legal Fees and License/Permit Costs (5%)				\$16,550
Construction Oversight (5%)				\$16,550
Total Indirect Capital Costs (Rounded to Nearest \$1,000)				\$56,000
Subtotal Capital Costs				\$387,000
Contingency Allowance (15%)				\$58,050
Total Capital Costs (Rounded to Nearest \$1,000)				\$445,000
Annual PRSC Costs				
Item Description	Quantity	Unit	Cost/Unit	Cost
DC09 Excavation of Impacted Soil and Transport to LTTD Unit	11,000	cubic yard	\$7.52	\$82,720
Covenant* Mobile LTTD Unit Process Soil to CUOs	17,820	ton	\$116	\$2,067,120
Confirmation Soil Sample Collection and Analysis (Excavation)	30	each	\$350	\$10,500
DC17 Confirmation Soil Sample Collection and Analysis (LTTD Process)	52	each	\$866	\$45,032
DC18 Air Monitoring	12.0	month	\$3,094	\$37,128
PDC* Transportation to Disposal Facility	356	ton	\$28.40	\$10,110
PDC* Permitting an Analytical	1	each	\$500	\$500
PDC* Off-Site Disposal of Soils and Waste (RCRA Direct Disposal)	356	ton	\$80	\$28,480
Hank's* Backfill and Compact Treated Soil	11,000	cubic yard	\$1.40	\$15,400
Hank's* Seed and Fertilize	3	acre	\$1,500	\$4,200
DC26 Yearly Summary Report	1	lump sum	\$7,392	\$7,392
Subtotal Direct PRSC Costs (Rounded to Nearest \$1,000)				\$2,309,000
Overhead and Profit (25%)				\$577,250
Administration (5%)				\$115,450
Insurance, Taxes, Licenses (2.5%)				\$57,725
Subtotal Indirect PRSC Costs (Rounded to Nearest \$1,000)				\$750,000
Subtotal Direct and Indirect PRSC Costs (Rounded to Nearest \$1,000)				\$3,059,000
Contingency Allowance (15%)				\$458,850
Total Annual PRSC Cost (Rounded to the nearest \$1,000)				\$3,518,000

Year Cost Projection (Assumed discount rate per year: 5%)	
Total Capital Costs	\$445,000
Present Work of 5 years PRSC (Rounded to Nearest \$1,000)	\$15,231,000
Total Alternative Cost (Rounded to Nearest \$10,000)	\$15,680,000

* Vendor quotes are referenced on the Reference Sheet located on Page L-14.

Table 6-5

REMOVAL ACTION COST ANALYSIS - ALTERNATIVE S&W4
OFF-SITE DISPOSAL
ENGINEERING EVALUATION/COST ANALYSIS
JENNISON-WRIGHT
GRANITE CITY, ILLINOIS

Reference

DC01

DC02

DC03

DC18

DC04

DC09

PDC*

E & E ASC

DC29

PDC*

PDC*

Hank's*

Barbier*

Hank's*

Direct Capital Costs				
Item Description	Quantity	Unit	Cost/Unit	Cost
Field Overhead and Oversight	7	month	\$14,646	\$102,522
Health and Safety	7	month	\$12,887	\$90,209
Mobilization and Demobilization of Site Equipment	1	lump sum	\$9,470	\$9,470
Air Monitoring	7	month	\$3,094	\$21,658
Decontamination Pad	1	lump sum	\$12,799	\$12,799
Excavation and On-Site Hauling	55,100	cubic yard	\$7.52	\$414,352
Transportation to Disposal Facility	90,000	ton	\$22.72	\$2,044,800
Confirmation Soil Samples and Analysis	150	each	\$350.00	\$52,500
Removal and Disposal of Concrete and Debris	1	lump sum	\$154,456	\$154,456
Permitting and Analytical	5	each	\$500	\$2,500
Off-Site Disposal of Soils and Waste (RCRA Direct Disposal)	90,000	ton	\$64	\$5,760,000
Seed and Fertilize	16.6	acre	\$1,500	\$24,900
Backfill Material	55,100	cubic yard	\$7.00	\$385,700
Backfill and Compact	55,100	cubic yard	\$1.40	\$77,140
Subtotal Direct Capital Costs				\$9,153,006
Overhead and Profit (25%)				\$2,288,252
Total Direct Capital Costs (Rounded to Nearest \$1,000)				\$11,441,000
Indirect Capital Costs				
Engineering and Design (3%)				\$343,230
Legal Fees and License/Permit Costs (5%)				\$572,050
Construction Oversight (5%)				\$572,050
Total Indirect Capital Costs (Rounded to Nearest \$1,000)				\$1,487,000
Subtotal Capital Costs				\$12,928,000
Contingency Allowance (15%)				\$1,939,200
Total Alternative Cost (Rounded to Nearest 10,000)				\$14,870,000

* Vendor quotes are referenced on the Reference Sheet located on Page L-14.

Table 6-7

**REMOVAL ACTION COST ANALYSIS - ALTERNATIVE NAPL1
HOT WATER AND STEAM FLUSHING
ENGINEERING EVALUATION/COST ANALYSIS
JENNISON-WRIGHT
GRANITE CITY, ILLINOIS**

Reference

DC01

DC02

DC28

DC08

DC27

Assumed

WRI*

WRI*

WRI*

WRI*

WRI*

Nyer*

Granite City*

LWD*

LWD*

DC26

Direct Capital Costs

Item Description	Quantity	Unit	Cost/Unit	Cost
Field Overhead and Oversight	3	month	\$14,646	\$43,938
Health and Safety	3	month	\$12,887	\$38,661
Mobilization and Demobilization	1	lump sum	\$8,500	\$8,500
Storage Shed	1	each	\$13,643	\$13,643
Additional NAPL Investigation	1	lump sum	\$65,185	\$65,185
Pilot Scale, Field Study CROW System	1	lump sum	\$32,000	\$32,000
Review of CROW System Design (WRI)	1	lump sum	\$18,720	\$18,720
Construction of Treatment System	1	lump sum	\$587,840	\$587,840
Dismantling of Treatment System	1	lump sum	\$52,320	\$52,320
Subtotal Direct Capital Costs				\$860,807
Overhead and Profit (25%)				\$215,202
Total Direct Capital Costs (Rounded to Nearest \$1,000)				\$1,076,000

Indirect Capital Costs

Engineering and Design (7%)				\$75,320
Legal Fees and License/Permit Costs (5%)				\$53,800
Construction Oversight (5%)				\$53,800
Total Indirect Capital Costs (Rounded to Nearest \$1,000)				\$183,000
Subtotal Capital Costs				\$1,259,000
Contingency Allowance (15%)				\$188,850
Total Capital Costs (Rounded to Nearest 1,000)				\$1,448,000

Annual PRSC Costs

Item Description	Quantity	Unit	Cost/Unit	Cost
O & M of Treatment System	1	year	\$290,400	\$290,400
Reporting	1	lump sum	\$9,280	\$9,280
On-Site Carbon Treatment	5,260	1000 gal.	\$0.55	\$2,893
Off-Site Disposal of Treated Liquid to Sanitary Sewer	7,030	100 cf	\$0.86	\$6,046
Transportation of NAPL Oil to Incinerator	51,000	gal	\$0.16	\$8,160
Off-Site Disposal of NAPL Oil (Incineration)	446,760	pound	\$0.15	\$67,908
Yearly Summary Report	1	lump sum	\$7,392	\$7,392
Subtotal Direct PRSC Costs (Rounded to Nearest \$1,000)				\$392,000
Overhead and Profit (25%)				\$98,000
Administration (5%)				\$19,600
Insurance, Taxes, Licenses (2.5%)				\$9,800
Subtotal Indirect PRSC Costs (Rounded to Nearest \$1,000)				\$127,000
Subtotal Direct and Indirect PRSC Costs (Rounded to Nearest \$1,000)				\$519,000
Contingency Allowance (15%)				\$77,850
Total Annual PRSC Cost (Rounded to the nearest \$1,000)				\$597,000

Year Cost Projection (Assumed discount rate per year: 5%)

Total Capital Costs	\$1,448,000
Present Worth of 4 years PRSC (Rounded to Nearest \$1,000)	\$2,117,000
Total Alternative Cost (Rounded to Nearest \$10,000)	\$3,570,000

* Vendor quotes are referenced on the Reference Sheet located on Page L-14.

Table 6-8

**REMOVAL ACTION COST ANALYSIS - ALTERNATIVE NAPL2
SURFACTANT FLUSHING
ENGINEERING EVALUATION/COST ANALYSIS
JENNISON-WRIGHT
GRANITE CITY, ILLINOIS**

Reference	Direct Capital Costs				
	Item Description	Quantity	Unit	Cost/Unit	Cost
DC01	Field Overhead and Oversight	3	month	\$14,646	\$43,938
DC02	Health and Safety	3	month	\$12,887	\$38,661
DC28	Mobilization and Demobilization	1	lump sum	\$8,500	\$8,500
DC08	Storage Shed	1	each	\$13,643	\$13,643
DC27	Additional NAPL Investigation	1	lump sum	\$65,185	\$65,185
AATDF*	Pilot Scale, Field Study of Surfactant Treatment System	1	lump sum	\$87,800	\$87,800
AATDF*	Design of Surfactant Treatment System	1	lump sum	\$33,680	\$33,680
WRI ¹	Construction of Treatment System	1	lump sum	\$587,840	\$587,840
WRI ¹	Dismantling of Treatment System	1	lump sum	\$52,320	\$52,320
	Subtotal Direct Capital Costs				\$931,567
	Overhead and Profit (25%)				\$232,892
	Total Direct Capital Costs (Rounded to Nearest \$1,000)				\$1,164,000
Indirect Capital Costs					
	Engineering and Design (7%)				\$81,480
	Legal Fees and License/Permit Costs (5%)				\$58,200
	Construction Oversight (5%)				\$58,200
	Total Indirect Capital Costs (Rounded to Nearest \$1,000)				\$198,000
	Subtotal Capital Costs				\$1,362,000
	Contingency Allowance (15%)				\$204,300
	Total Capital Costs (Rounded to Nearest \$1,000)				\$1,566,000
Annual PRSC Costs					
Reference	Annual PRSC Costs				
	Item Description	Quantity	Unit	Cost/Unit	Cost
AATDF*	Surfactant Addition	168,750	pound	\$1.70	\$287,550
AATDF*	O & M of Treatment System	1	lump sum	\$62,938	\$62,938
Nyer*	On-Site Carbon Treatment	5,260	1000 gal	\$0.55	\$2,893
Granite City*	Off-Site Disposal of Treated Liquid to Sanitary Sewer	703	100 cf	\$0.86	\$605
LWD*	Transportation of NAPL Oil to Incinerator	51,000	gal	\$0.16	\$8,160
LWD*	Off-Site Disposal of NAPL Oil (Incineration)	446,760	pound	\$0.15	\$67,008
DC26	Yearly Summary Report	1	lump sum	\$7,392	\$7,392
	Subtotal Direct PRSC Costs (Rounded to Nearest \$1,000)				\$437,000
	Overhead and Profit (25%)				\$109,250
	Administration (5%)				\$21,850
	Insurance, Taxes, Licenses (2.5%)				\$10,925
	Subtotal Indirect PRSC Costs (Rounded to Nearest \$1,000)				\$142,000
	Subtotal Direct and Indirect PRSC Costs (Rounded to Nearest \$1,000)				\$579,000
	Contingency Allowance (15%)				\$86,850
	Total Annual PRSC Cost (Rounded to the nearest \$1,000)				\$666,000
Year Cost Projection (Assumed discount rate per year: 5%)					
	Total Capital Costs				\$1,566,000
	Present Worth of 4 years PRSC (Rounded to Nearest \$1,000)				\$2,362,000
	Total Alternative Cost (Rounded to Nearest \$10,000)				\$3,930,000

* Vendor quotes are referenced on the Reference Sheet located on Page L-14.

¹ WRI prices were used for construction and dismantling estimates because of the similarities of the surfactant treatment system to the CROW treatment system.

Table 6-10

REMOVAL ACTION COST ANALYSIS - ALTERNATIVE GW1
NATURAL ATTENUATION
ENGINEERING EVALUATION/COST ANALYSIS
JENNISON-WRIGHT
GRANITE CITY, ILLINOIS

Direct Capital Costs

Item Description	Quantity	Unit	Cost/Unit	Cost
Groundwater Monitoring	2	round	\$35,190	\$70,380
Yearly Summary Report	1	lump sum	\$7,392	\$7,392
<i>Subtotal Direct PRSC Costs (Rounded to Nearest \$1,000)</i>				\$78,000
Overhead and Profit (25%)				\$19,500
Administration (5%)				\$3,900
Insurance, Taxes, Licenses (2.5%)				\$1,950
<i>Subtotal Indirect PRSC Costs (Rounded to Nearest \$1,000)</i>				\$25,000
<i>Subtotal Direct and Indirect PRSC Costs (Rounded to Nearest \$1,000)</i>				\$103,000
Contingency Allowance (15%)				\$15,450
Total Annual PRSC Cost (Rounded to the nearest \$1,000)				\$118,000

0 Year Cost Projection (Assumed discount rate per year: 5%)

Total Capital Costs	\$0
Present Worth of 30 years PRSC (Rounded to Nearest \$1,000)	\$1,814,000
Total Alternative Cost (Rounded to Nearest \$10,000)	\$1,810,000

Reference

DC06

DC26

Table 6-11

**REMOVAL ACTION COST ANALYSIS - ALTERNATIVE GW2
ENHANCED IN-SITU BIOREMEDIATION
ENGINEERING EVALUATION/COST ANALYSIS
JENNISON-WRIGHT
GRANITE CITY, ILLINOIS**

Reference	Direct Capital Costs				
	Item Description	Quantity	Unit	Cost/Unit	Cost
	Field Overhead and Oversight	1	month	\$14,646	\$14,646
	Health and Safety	1	month	\$12,887	\$12,887
	Mobilization and Demobilization	1	lump sum	\$8,500	\$8,500
	Bench-Scale Study	1	lump sum	\$8,000	\$8,000
	Construction of Air Sparging System and Additional Sparging Points	1	lump sum	\$156,852	\$156,852
	Installation of 8 Additional Wells (PCP Area)	1	lump sum	\$42,712	\$42,712
	Subtotal Direct Capital Costs				\$243,597
	Overhead and Profit (25%)				\$60,899
	Total Direct Capital Costs (Rounded to Nearest \$1,000)				\$304,000
	Indirect Capital Costs				
	Engineering and Design (35%)				\$106,400
	Legal Fees and License/Permit Costs (5%)				\$15,200
	Construction Oversight (5%)				\$15,200
	Total Indirect Capital Costs (Rounded to Nearest \$1,000)				\$137,000
	Subtotal Capital Costs				\$441,000
	Contingency Allowance (1.5%)				\$66,150
	Total Capital Costs (Rounded to Nearest \$1,000)				\$507,000
	Annual PRSC Costs (Years 1 through 3)				
	Item Description	Quantity	Unit	Cost/Unit	Cost
Regenis* 33 22 0106 ECHOS	Oxygen Releasing Compound (ORC) 2-Inch Sock	800	linear ft	\$24.00	\$19,200
	Change Out of ORC Socks (Labor)	40	hour	\$29.81	\$1,192
	Groundwater Monitoring	2	round	\$35,190	\$70,380
	Yearly Summary Report	1	lump sum	\$7,392	\$7,392
	Subtotal Direct PRSC Costs (Rounded to Nearest \$1,000)				\$98,000
	Overhead and Profit (25%)				\$24,500
	Administration (5%)				\$4,900
	Insurance, Taxes, Licenses (2.5%)				\$2,450
	Subtotal Indirect PRSC Costs (Rounded to Nearest \$1,000)				\$32,000
	Subtotal Direct and Indirect PRSC Costs (Rounded to Nearest \$1,000)				\$130,000
	Contingency Allowance (1.5%)				\$19,500
	Total Annual PRSC Costs for Years 1 - 3 (Rounded to the nearest \$1,000)				\$150,000
	Annual PRSC Costs (Years 4 through 20)				
	Item Description	Quantity	Unit	Cost/Unit	Cost
	Oxygen Releasing Compound (ORC) 2-Inch Sock	800	linear ft	\$24.00	\$19,200
	Change Out of ORC Socks (Labor)	80	hour	\$29.81	\$2,385
	O & M of Air Sparging Treatment System	1	year	\$22,270	\$22,270
	Groundwater Monitoring	2	round	\$35,190	\$70,380
	Yearly Summary Report	1	lump sum	\$7,392	\$7,392
	Subtotal Direct PRSC Costs (Rounded to Nearest \$1,000)				\$122,000
Regenis* 33 22 0106 ECHOS	Overhead and Profit (25%)				\$30,500
	Administration (5%)				\$6,100
	Insurance, Taxes, Licenses (2.5%)				\$3,050
	Subtotal Indirect PRSC Costs (Rounded to Nearest \$1,000)				\$40,000
	Subtotal Direct and Indirect PRSC Costs (Rounded to Nearest \$1,000)				\$162,000
	Contingency Allowance (1.5%)				\$24,300
	Total Annual PRSC Costs for Years 4 -20 (Rounded to the nearest \$1,000)				\$186,000
	0 Year Cost Projection (Assumed discount rate per year: 5%)				
	Total Capital Costs				\$507,000
	Present Worth of 1 - 3 years PRSC (Rounded to Nearest \$1,000)				\$410,000
	Present Worth of 4 - 20 years PRSC (Rounded to Nearest \$1,000)				\$1,741,000
	Total Alternative Cost (Rounded to Nearest \$10,000)				\$2,660,000

* Vendor quotes are referenced on the Reference Sheet located on Page L-14.

Table 6-12

**REMOVAL ACTION COST ANALYSIS - ALTERNATIVE GW3
EX-SITU BIOLOGICAL TREATMENT
ENGINEERING EVALUATION/COST ANALYSIS
JENNISON-WRIGHT
GRANITE CITY, ILLINOIS**

Reference	Direct Capital Costs				
	Item Description	Quantity	Unit	Cost/Unit	Cost
DC01	Field Overhead and Oversight	8	month	\$14,646	\$117,168
DC02	Health and Safety	8	month	\$12,887	\$103,096
DC28	Mobilization and Demobilization	1	lump sum	\$8,500	\$8,500
Assumed	Bench Scale Study	1	lump sum	\$10,000	\$10,000
Assumed	Pilot-Scale Study	1	lump sum	\$50,000	\$50,000
DC19	Treatment Building	1	each	\$64,037	\$64,037
Biotrol*	Treatment Startup Assistance	1	lump sum	\$3,400	\$3,400
Biotrol*	Pretreatment System	1	each	\$14,500	\$14,500
33 11 9320 ECHOS	Heat Exchanger, 112 gpm	1	each	\$6,788	\$6,788
Biotrol*	BioAccelerator System	1	each	\$185,800	\$185,800
Biotrol*	Post Treatment	1	each	\$71,400	\$71,400
Biotrol*	Activated Carbon System	1	job	\$3,500	\$3,500
	Subtotal Direct Capital Costs				\$638,189
	Overhead and Profit (25%)				\$159,547
	Total Direct Capital Costs (Rounded to Nearest \$1,000)				\$798,000
	Indirect Capital Costs				
	Engineering and Design (25%)				\$199,500
	Legal Fees and License/Permit Costs (5%)				\$39,900
	Construction Oversight (5%)				\$39,900
	Total Indirect Capital Costs (Rounded to Nearest \$1,000)				\$279,000
	Subtotal Capital Costs				\$1,077,000
	Contingency Allowance (15%)				\$161,550
	Total Capital Costs (Rounded to Nearest 1,000)				\$1,239,000
	Annual PRSC Costs				
	Item Description	Quantity	Unit	Cost/Unit	Cost
Biotrol*	O & M of Treatment System	52,560	1000 gal	\$0.31	\$16,294
DC23	Chemicals (Bionutrients and pH Control)	1	year	\$1,577	\$1,577
33 13 2058 ECHOS	Carbon Regeneration	5,500	pound	\$0.05	\$275
LWD*	Transportation of Sludge to Disposal Facility	0.23	ton	\$43.06	\$10
LWD*	Off-Site Disposal of Sludge	460	pound	\$0.35	\$161
Granite City*	Off-Site Disposal of Treated Liquid to Sanitary Sewer	70,267	100 cf	\$0.86	\$60,430
DC06	Groundwater Monitoring	2	round	\$35,190	\$70,380
DC26	Yearly Summary Report	1	lump sum	\$7,392	\$7,392
	Subtotal Direct PRSC Costs (Rounded to Nearest \$1,000)				\$157,000
	Overhead and Profit (25%)				\$39,250
	Administration (5%)				\$7,850
	Insurance, Taxes, Licenses (2.5%)				\$3,925
	Subtotal Indirect PRSC Costs (Rounded to Nearest \$1,000)				\$51,000
	Subtotal Direct and Indirect PRSC Costs (Rounded to Nearest \$1,000)				\$208,000
	Contingency Allowance (15%)				\$31,200
	Total Annual PRSC Cost (Rounded to the nearest \$1,000)				\$239,000
	0 Year Cost Projection (Assumed discount rate per year: 5%)				
	Total Capital Costs				\$1,239,000
	Present Worth of 10 years PRSC (Rounded to Nearest \$1,000)				\$1,845,000
	Total Alternative Cost (Rounded to Nearest \$10,000)				\$3,080,000

* Vendor quotes are referenced on the Reference Sheet located on Page L-14.

Table 6-13

REMOVAL ACTION COST ANALYSIS
BUILDING ABATEMENT AND DEMOLITION
ENGINEERING EVALUATION/COST ANALYSIS
JENNISON-WRIGHT
GRANITE CITY, ILLINOIS

Reference

DC01

DC02

DC03

Hayden*

Hayden*

DC24

Direct Capital Costs				
Item Description	Quantity	Unit	Cost/Unit	Cost
Field Overhead and Oversight	3	month	\$14,646	\$43,938
Health and Safety	3	month	\$12,887	\$38,661
Mobilization and Demobilization	1	lump sum	\$9,470	\$9,470
Structure Demolition, Removal, and Disposal (not including floor slabs)	1	lump sum	\$66,056	\$66,056
Demolition, Removal and Disposal of Floor Slabs	1	lump sum	\$28,000	\$28,000
Abatement and Disposal of RACM	1	lump sum	\$35,903	\$35,903
Subtotal Direct Capital Costs				\$222,028
Overhead and Profit (25%)				\$55,507
Total Direct Capital Costs (Rounded to Nearest \$1,000)				\$278,000
Indirect Capital Costs				
Engineering and Design (10%)				\$27,800
Legal Fees and License/Permit Costs (0.1%)				\$278
Construction Oversight (5%)				\$13,900
Total Indirect Capital Costs (Rounded to Nearest \$1,000)				\$42,000
Subtotal Capital Costs				\$320,000
Contingency Allowance (15%)				\$48,000
Total Alternative Cost (Rounded to Nearest \$1,000)				\$368,000

* Vendor quotes are referenced on the Reference Sheet located on Page L-14.

Table 6-14

**REMOVAL ACTION COST ANALYSIS
REMOVAL OF MISCELLANEOUS ITEMS
ENGINEERING EVALUATION/COST ANALYSIS
JENNISON-WRIGHT
GRANITE CITY, ILLINOIS**

Reference	Direct Capital Costs				
	Item Description	Quantity	Unit	Cost/Unit	Cost
DC01	Field Overhead and Oversight	2	month	\$14,646	\$29,292
DC02	Health and Safety	2	month	\$12,887	\$25,774
DC03	Mobilization and Demobilization	1	lump sum	\$9,470	\$9,470
DC04	Decontamination Pad	1	lump sum	\$12,799	\$12,799
DC25	Cleanout and Transportation of Tanks and Tram Tracks	1	lump sum	\$43,083	\$43,083
LWD*	Transportation of Oil to Incinerator	68	ton	\$43.06	\$2,928
LWD*	Off-Site Disposal of Oil (Incineration)	63,050	pound	\$0.23	\$14,502
LWD*	Off-Site Disposal of Sludge	72,430	pound	\$0.35	\$25,351
Nyer*	On-Site Carbon Treatment of Liquids	35	1000 gal	\$0.55	\$19
Granite City*	Disposal of Treated Liquid to Sanitary Sewer	47	100 cf	\$0.86	\$40
	Subtotal Direct Capital Costs				\$163,258
	Overhead and Profit (25%)				\$40,815
	Total Direct Capital Costs (Rounded to Nearest \$1,000)				\$204,000
	Indirect Capital Costs				
	Engineering and Design (7%)				\$14,280
	Legal Fees and License/Permit Costs (5%)				\$10,200
	Construction Oversight (5%)				\$10,200
	Total Indirect Capital Costs (Rounded to Nearest \$1,000)				\$35,000
	Subtotal Capital Costs				\$239,000
	Contingency Allowance (15%)				\$35,850
	Total Alternative Cost (Rounded to Nearest \$1,000)				\$275,000

* Vendor quotes are referenced on the Reference Sheet located on Page L-14.

Reference Summary Sheet

Hank's - HANK'S Excavating & Landscaping, Inc., Belleville, IL,
written price quote February 27, 1998.

Barbier - BARBIER TRUCK SERVICE, INC., Fairview Heights, IL,
written price quote March 17, 1998.

Nyer - Evan K. Nyer, Groundwater Treatment Technology, 1992, p. 107.

Granite City - Granite City Wastewater Department, Granite City, MO,
contact report February 3, 1998.

Covenant - Covenant Environmental Technologies, Inc., Tulsa, OK,
written proposal November 3, 1997.

WRI - Western Research Institute, Laramie, WY, written proposal December 19, 1997.

LWD - LWD, INC., Calvert City, KY, written price quote February 20, 1998.

AATDF - Advanced Applied Technology Demonstration Facility Program Manual, Houston, TX,
February 1997.

Regenesis - Regenesis Bioremediation Products, San Juan Capistrano, CA,
written price quote January 9, 1998.

Hayden - HAYDEN Wrecking Corporation, Washington Park, IL,
written proposal November 12, 1997.

Odell's - Odell's Iron and Metal, Granite City, MO, contact report February 24, 1998.

BFI - BFI, St. Louis, MO, written price quote February 20, 1998.

Biotrol - BioTrol Treatment System, Eden Prairie, MN
written proposal #97193QB, September 29, 1997.

PDC - Peoria Disposal Company, Peoria, IL, written proposal February 20, 1998.

DERIVED COSTS FOR JENNISON-WRIGHT REMOVAL ACTION

DERIVED COST DC01

FIELD OVERHEAD AND OVERSIGHT

Non-responsive

Building Construction Cost Data (BCCD), 1998.

DERIVED COST DC02

Non-responsive

DERIVED COST DC03

MOBILIZATION AND DEMOBILIZATION OF SITE EQUIPMENT

BCCD reference	description	quantity	unit	unit cost	cost
assumed	mobe/demobe field office	1	each	\$500.00	\$500
assumed	clear utilities, coordinate with vendors	160	hour	\$50.00	\$8,000
022 274 0020	mobe/demobe, dozer or loader, 105 H.P.	2	each	\$240.50	\$481
022 274 0300	mobe/demobe scraper	1	each	\$274.50	\$275
022 274 1200	mobe/demobe, tractor shovel or loader	1	each	\$214.00	\$214
<u>DC03</u>					\$9,470

DERIVED COST DC04

DECONTAMINATION PAD

ECHOS reference	description	quantity	unit	unit cost	cost
33 08 0573	80 mil HDPE geomembrane	1,000	square ft.	\$2.09	\$2,090
33 09 0701	concrete containment wall	31	cubic yard	\$179.02	\$5,550
33 17 0815	1800 psi steam cleaner, 6 HP	1	each	\$3,671.81	\$3,672
19 04 0603	sump	1	each	\$1,453.14	\$1,453
Nyer	carbon treatment of decon water	20	1000 gallon	\$0.55	\$11
Granite City	discharge of treated liquid to sanitary sewer	27	100 cf	\$0.86	\$23
<u>DC04</u>					\$12,799

Environmental Cost Handling Options and Solutions (ECHOS), 1998.

DERIVED COSTS FOR JENNISON-WRIGHT REMOVAL ACTION

DERIVED COST DC05

COVER MAINTENANCE

reference	description	quantity	unit	unit cost	cost
Hank's	backfill & compact soil (assume 2.5% of cap)	1,340	cubic yard	\$1.75	\$2,345
Babier	classified fill material	1,340	cubic yard	\$8.75	\$11,725
Hank's	seeding (includes fertilization)	0.41	acre	\$1,500.00	\$615
016 408 0150 (BCCD)	backhoe crawler mounted 1 cy (crew rental)	0.25	month	\$5,802.59	\$1,451
<u>DC05</u>					\$16,136

DERIVED COST DC06

GROUNDWATER MONITORING

Non-responsive

E & E	low-flow pump and tubing	1	lump sum	\$500.00	\$500
state travel rate	lodging and per diem	20	day	\$98.00	\$1,960
33 01 0203	mobilize crew, 250 mile per person	2	each	\$178.88	\$358
016 420 7290 (BCCD)	rental van	2	week	\$300.00	\$600
33 02 0401	disposable materials per sample	24	sample	\$6.87	\$165
33 02 0402	decontamination materials per sample	24	sample	\$6.26	\$150
33 02 2043	overnight delivery (12 samples per shipment)*	2	each	\$78.27	\$157
33 02 2026	40 ml vial, 72 per case	1.25	case	\$89.91	\$112
33 02 2030	1 liter HDPE, 12 per case	2.5	case	\$32.64	\$82
33 02 2020	1 liter glass, 12 per case	6	case	\$44.37	\$266
<u>DC06</u>					\$35,190

DERIVED COST DC07

Non-responsive

DERIVED COST DC08

STORAGE SHED

BCCD reference	description	quantity	unit	unit cost	cost
022 212 0100	gravel material	15	cubic yard	\$8.81	\$132
022 204 1600	compact backfill 6" to 12" lifts	15	cubic yard	\$1.56	\$23
18 02 0322 (ECHOS)	8" structural slab on grade	400	square ft	\$6.09	\$2,436
171 970 0010	warehouse (material and labor)	400	square ft	\$24.75	\$9,900
171 970 1800	equipment	400	square ft	\$0.40	\$160
171 970 0100	site work	400	square ft	\$2.48	\$992
<u>DC08</u>					\$13,643

DERIVED COSTS FOR JENNISON-WRIGHT REMOVAL ACTION**DERIVED COST DC09****EXCAVATION AND TRANSPORTATION OF IMPACTED SOIL AND WASTES**

ECHOS reference	description	quantity	unit	unit cost	cost
17 03 0217	cat 953, 2 cy track loader	0.0333	hr	\$70.21	\$2.34
17 03 0285	12 cy dump truck	0.1	hr	\$46.12	\$4.61
17 03 0517	spread compact large areas, d8 sheepsfoot	1	cubic yard	\$0.57	\$0.57
				DC09	\$7.52

Assume a track loader capacity of 30 cy/hr.

DERIVED COST DC10**CONSTRUCTION OF LANDFARM CELL**

ECHOS reference	description	quantity	unit	unit cost	cost
17 03 0428	clay (mat, labor, comp and comp testing)	34,100	cy	\$13.67	\$466,147
17 03 0511	compaction of sand backfill	3,333	cy	\$3.26	\$10,866
17 03 0406	cat 966, 4 cy delivered and dumped sand backfill	3,333	cy	\$29.49	\$98,290
				DC10	\$575,303

Landfarm dimensions are 550 ft X 550 ft.

Drainage costs included in DC13.

DERIVED COST DC11**CONSTRUCTION OF RAMP**

ECHOS reference	description	quantity	unit	unit cost	cost
17 03 0203	roadway soil excavation and haul spoil	19	cy	\$3.98	\$76
17 03 0315	roadway subgrade and spread	19	cy	\$9.25	\$176
17 03 0501	compact subgrade, 2 lifts	19	cy	\$0.14	\$3
17 03 0504	compact borrowed subgrade, 4 lifts	65	cy	\$4.74	\$308
18 01 0102	gravel delivered and dumped	65	cy	\$19.22	\$1,249
				DC11	\$1,812

DERIVED COST DC12**TEMPORARY STOCKPILE PAD AND COVER**

ECHOS reference	description	quantity	unit	unit cost	cost
33 08 0573	80 mil HDPE geomembrane liner	10,000	sf	\$2.09	\$20,900
33 08 0561	20 mil polymeric liner PVC, cover	15,000	sf	\$0.26	\$3,900
17 03 0217	track loader 2.0 cy	16	hour	\$94.07	\$1,505
022 212 0400 (BCCD)	bank sand (0.5' thickness below hdpe liner)	185	cy	\$7.83	\$1,449
				DC12	\$27,754

DERIVED COST DC13**DRAINAGE COLLECTION, STORAGE AND TREATMENT**

ECHOS reference	description	quantity	unit	unit cost	cost
33 27 0311	4-inch 90 degree hdpe elbow	4	each	\$101.63	\$407
33 23 0402	4-inch filter sock	1,480	linear ft	\$2.32	\$3,434
33 26 0802	4-inch slotted pvc pipe	1,480	linear ft	\$3.46	\$5,121
33 27 0301	4-inch hdpe tee	6	linear ft	\$69.39	\$416
19 04 0610	75 gpm c1 sump pump 2-inch discharge	1	each	\$2,933.81	\$2,934
027 152 0400 (BCCD)	manhole, concrete blocks 4' id 4' deep	4	each	\$546.00	\$2,184
165 120 0200 (BCCD)	7.5 kw generator	1	each	\$6,897.00	\$6,897
33 13 2001	carbon treatment 5 gpm, 85 lb fill dot 55 drum	6	each	\$546.00	\$3,276
33 19 7101	sewer connection fee	1	each	\$1,258.00	\$1,258
				DC13	\$25,927

DERIVED COSTS FOR JENNISON-WRIGHT REMOVAL ACTION**DERIVED COST DC14****RETENTION POND**

ECHOS reference	description	quantity	unit	unit cost	cost
17 03 0201	excavation, spoil to side	7,600	cy	\$0.80	\$6,080
17 03 0428	clay, 8" lifts (mat, labor, trans, compaction test)	2,844	cy	\$13.67	\$38,877
33 08 0571	40 mil polymeric liner, hdpe (mat, equip, labor)	25,600	sf	\$1.06	\$27,136
				DC14	\$72,093

DERIVED COST DC15**SOIL TILLING, NUTRIENT AND WATER ADDITION****Non-responsive**

18 05 0410	fertilize, 800 lbs/acre, spray from truck	6.9	acre	\$49.22	\$340
18 05 0413	watering with 3,000 gal tank truck	6.9	acre	\$43.07	\$297
				DC15	\$9,575

Assume soil tilling, fertilizer and water addition will be done quarterly by the contractor and an assistant.

DERIVED COST DC16**CONFIRMATION SOIL SAMPLE COLLECTION AND ANALYSIS (LANDFARM)****Non-responsive**

33 02 0401	disposable materials per sample	11	sample	\$6.96	\$77
33 02 0402	decontamination materials per sample	11	sample	\$6.44	\$71
33 02 2023	4-ounce sample jar case of 24	2.5	case	\$58.36	\$146
33 02 2034	custody seals package of ten	2	pack	\$1.38	\$3
33 02 2043	overnight delivery 51-70 lb package	2	each	\$78.27	\$157
E & E laboratory	orthophosphate analysis	11	each	\$15.00	\$165
E & E laboratory	total kjeldahl nitrogen analysis	11	each	\$25.00	\$275
E & E laboratory	total organic carbon analysis	11	each	\$45.00	\$495
E & E laboratory	full scan (pp voc's, pp svoc's, pest/pcb, rcra met)	11	each	\$785.00	\$8,635
				DC16	\$12,974

The derived cost assumes two E & E samplers to travel to the site quarterly for sample collection.

The total cost is a per quarter cost.

DERIVED COST DC17**CONFIRMATION SOIL SAMPLE COLLECTION AND ANALYSIS (LTTD)**

ECHOS reference	description	quantity	unit	unit cost	cost
33 22 0117	field labor	1	hour	\$17.97	\$18
33 02 0401	disposable materials	1	each	\$6.96	\$7
33 02 0402	decontamination materials	1	each	\$6.44	\$6
33 02 2023	4-ounce sample jar case of 24	0.25	case	\$58.36	\$15
33 02 2034	custody seals package of ten	0.5	pack	\$1.38	\$1
33 02 2041	overnight delivery 11-20 lb package	1	each	\$34.25	\$34
E & E laboratory	full scan (pp voc's, ppsvoc's, pest/pcb, rcra met)	1	each	\$785.00	\$785
				DC17	\$866

This derived cost assumes that the On-Site LTTD Contractor would collect one sample per week.

DERIVED COSTS FOR JENNISON-WRIGHT REMOVAL ACTION**DERIVED COST DC18****AIR MONITORING**

ECHOS reference	description	quantity	unit	unit cost	cost
33 02 0314	low flow sampling pump	3	month	\$178.43	\$535
33 02 0323	manual air sampling kit, detection tubes	4	each	\$88.69	\$355
33 02 1821	organochlorine, air (TO-4)	4	each	\$242.50	\$970
33 02 1828	polyaromatic hydrocarbons, air (TO-13)	4	each	\$100.00	\$400
33 02 2041	overnight delivery, 11-20 lb package	1	each	\$34.25	\$34
E & E	air monitoring reporting	16	hours	\$50.00	\$800
DC18					\$3,094

DERIVED COST DC19**TREATMENT BUILDING**

BCCD reference	description	quantity	unit	unit cost	cost
022 212 0100	gravel material	67	cubic yard	\$8.81	\$590
022 204 1600	compact backfill 6" to 12" lifts	67	cubic yard	\$1.56	\$105
18 02 0322 (ECHOS)	8" structural slab on grade	1,800	square ft	\$6.09	\$10,962
171 970 0010	warehouse (material and labor)	1,800	square ft	\$24.75	\$44,550
171 970 1800	equipment	1,800	square ft	\$0.40	\$720
171 970 0100	site work	1,800	square ft	\$2.48	\$4,464
171 970 2900	electrical	1,800	square ft	\$1.47	\$2,646
DC19					\$64,037

DERIVED COST DC20**CONSTRUCTION OF AIR SPARGING TREATMENT SYSTEM (IN 22nd STREET LAGOON AREA)****Non-responsive**

33 17 0808	decontaminate drill rig and augers	5	day	\$205.34	\$1,027
33 23 0121	2" dia. pvc well casing	180	linear ft	\$8.95	\$1,611
33 23 0221	2" dia. Pvc well screen	900	linear ft	\$12.52	\$11,268
33 23 0311	2" dia. Pvc well plug	9	each	\$16.63	\$150
33 23 1111	well development equipment	2	week	\$440.65	\$881
33 23 1101	hollow stem auger 2" well	1,035	linear ft	\$43.66	\$45,188
33 23 1401	2" screen filter pack	900	linear ft	\$9.27	\$8,343
33 23 1811	2" portland cement grout	18	linear ft	\$0.92	\$17
33 23 2101	2" bentonite seal	9	each	\$34.34	\$309
33 27 0112	2" pvc 90 degree elbow	3	each	\$19.46	\$58
33 27 0402	2" check valve	9	each	\$153.86	\$1,385
33 27 0102	2" pvc tee	6	each	\$32.18	\$193
33 26 0407	4" branch pvc connection piping	295	linear ft	\$6.84	\$2,018
33 27 0104	4" pvc tee	1	each	\$69.51	\$70
33 27 0114	4" pvc 90 degree elbow	2	each	\$51.07	\$102
33 31 0209	pressure gauge	3	each	\$95.74	\$287
33 27 0155	6" by 4" pvc reducer	3	each	\$67.28	\$202
33 26 0412	6" dia. Pvc connection piping	210	linear ft	\$13.08	\$2,747
33 27 0106	6" pvc tee	1	each	\$228.85	\$229
33 13 9001	blower 98 scfm, 5 psi	1	each	\$3,854.00	\$3,854
E & E	SVE Collection System (80% of AS equipment cost	1	lump sum	\$69,712	\$69,712
DC20					\$156,852

The air-sparging system consists of a 6" diameter header pipe attached to three 4" diameter branch pipes which are connected to nine 2" diameter air sparging wells. The sparging wells are screened from 15' to 115' bgs.

DERIVED COSTS FOR JENNISON-WRIGHT REMOVAL ACTION

DERIVED COST DC21

Non-responsive

ECHOS reference	description	quantity	unit	unit cost	cost
33 17 0808	decontaminate drill rig and augers	5	day	\$205.34	\$1,027
33 23 0121	2" dia. stainless steel well casing	160	linear ft	\$21.73	\$3,477
33 23 0221	2" dia. stainless steel well screen	320	linear ft	\$18.41	\$5,891
33 23 0311	2" dia. stainless steel well plug	8	each	\$57.76	\$462
33 23 1111	well development equipment	1	week	\$440.65	\$441
33 23 1101	hollow stem auger 2" well	480	linear ft	\$43.66	\$20,957
33 23 1401	2" screen filter pack	320	linear ft	\$9.27	\$2,966
33 23 1811	2" portland cement grout	16	linear ft	\$0.92	\$15
33 23 2101	2" bentonite seal	8	each	\$34.34	\$275
				<u>DC21</u>	\$42,712

DERIVED COST DC22

O&M OF AIR SPARGING TREATMENT SYSTEM

ECHOS reference	description	quantity	unit	unit cost	cost
33 13 2311	operational labor	26	day	\$765.60	\$19,906
33 42 0101	pump and motor repair	6	each	\$393.96	\$2,364
				<u>DC22</u>	\$22,270

Assume pump repairs will occur once every 2 months.

DERIVED COST DC23

CHEMICALS

ECHOS reference	description	quantity	unit	unit cost	cost
33 33 0107	caustic material for pH control	2	55 gal	\$234.26	\$469
33 11 9951	bionutrients 50 lb bag	19	bag	\$58.30	\$1,108
				<u>DC23</u>	\$1,577

DERIVED COST DC24

ABATEMENT AND DISPOSAL OF RACM

BCCD reference	description	quantity	unit	unit cost	cost
020 840 1100	abatement - pipe insulation	181	304 lf	\$6.25	\$1,131
020 840 0200	abatement - boiler jacket	85	square ft	\$4.01	\$341
020 840 8100	abatement - transite shingle siding	7,000	square ft	\$2.19	\$15,330
020 820 300	separation barrier 2"x4" @ 16", 1/2" plywood 8'	7,200	square ft	\$2.26	\$16,272
020 810 6000	abatement - disposal poly bags 6 mil (3 cf)	244	each	\$1.10	\$268
020 850 0100	abatement - collect disposal poly bags	244	each	\$5.85	\$1,427
020 850 5000	disposal (assume ACM 1" thick)	27	cubic yard	\$42.00	\$1,134
				<u>DC24</u>	\$35,903

DERIVED COSTS FOR JENNISON-WRIGHT REMOVAL ACTION

DERIVED COST DC25

CLEAN OUT AND TRANSPORT OF TANKS AND RAILROAD TRAM TRACKS

BCCD reference	description	quantity	unit	unit cost	cost
020 880 0200	remove sludge and remaining product from tank	6	tank	\$316.50	\$1,899
020 880 0401	tank cleaning and transportation (1.5 lb/100 gal)	75	pound	\$1.43	\$107
020 554 3500	railroad track removal ties and track	5,185	linear ft	\$6.19	\$32,095
020 620 5000	haul, per mile up to 8 cy track	60	cubic yard	\$0.52	\$31
33 17 0818 (ECHOS)	1,800 psi pressure washer	1	month	\$768.50	\$769
33 17 0823 (ECHOS)	operation of pressure washer	200	hour	\$40.91	\$8,182
				<u>DC25</u>	\$43,083

Non-responsive

DERIVED COST DC27

ADDITIONAL NAPL INVESTIGATION

Non-responsive

state travel rate	lodging and per diem (E & E)	20	day	\$98.00	\$1,960
33 01 0202	lodging and per diem (drillers)	20	day	\$104.94	\$2,099
33 23 0121	2" dia. Stainless steel well casing	550	linear ft	\$21.73	\$11,952
33 23 0221	2" dia. Stainless steel well screen	50	linear ft	\$18.41	\$921
33 23 0311	2" dia. Stainless steel well plug	5	each	\$57.76	\$289
33 23 1111	well development equipment	2	week	\$440.65	\$881
33 23 1101	hollow stem auger 2" well	575	linear ft	\$43.66	\$25,105
33 23 1401	2" screen filter pack	50	linear ft	\$9.27	\$464
33 23 1811	2" portland cement grout	575	linear ft	\$0.92	\$529
33 23 2215	steel protective cover	5	each	\$285.18	\$1,426
E & E	reporting	160	hour	\$60.00	\$9,600
				<u>DC27</u>	\$65,185

Assume 2 E & E employees will work 2 10-day shifts. Five new 2" diameter ss wells will be installed to a depth of 115' bgs.

DERIVED COST DC28

MOBILIZATION AND DEMOBILIZATION

BCCD reference	description	quantity	unit	unit cost	cost
assumed	mobe/demobe field office	1	each	\$500.00	\$500
assumed	clear utilities, coordinate vendors	160	hour	\$50.00	\$8,000
				<u>DC28</u>	\$8,500

DERIVED COSTS FOR JENNISON-WRIGHT REMOVAL ACTION

DERIVED COST DC29

REMOVAL AND DISPOSAL OF CONCRETE AND DEBRIS

BCCD reference	description	quantity	unit	unit cost	cost
BFI*	Transportation of Misc. Wood, Concrete and Trash	414	ton	\$33.75	\$13,973
BFI*	Disposal of Misc. Wood, Concrete and Trash	414	ton	\$25.00	\$10,350
Odell's*	Recycling of Metal Scrap	188	ton	(\$80)	(\$15,040)
020 554 1900	Removal of Misc. Slabs 1-6 and 5 Equipment Slabs	3100	square yards	7.6	\$23,560
	Transportation of Concrete	2070	ton	\$33.75	\$69,863
	Disposal of Concrete	2070	ton	\$25.00	\$51,750
				<u>DC29</u>	\$154,456

JENNISON-WRIGHT REMOVAL ACTION GRANITE CITY, ILLINOIS

Basis for Cost Estimate

The following general assumptions were used as a basis for the cost estimated for the Jennison-Wright Removal Action.

1. Costs are estimated at current 1998 levels.
2. Environmental Cost and Handling Options and Solutions (ECHOS 1998) estimating data are used for much of the estimate line items; ECHOS reference numbers are provided for those items. ECHOS costs include labor, equipment and materials.
3. In addition, R.S. Means, Building Construction Cost Data (BCCD), vendor quotes, and contact reports were also used.
4. For those items which were estimated using vendor quotes, the quoted price was initially reduced by 25%, since overhead and profit was included in the quoted price.. The 25% reduction was added back to the total removal option cost in the overhead and profit line item.
5. Samples from the groundwater treatment system will be collected quarterly.
6. The treatment system will operate unattended on a 24 hours per day and 7 days per week basis.
7. This cost estimate includes direct costs, indirect capital costs and O & M costs.
8. Unit weight used for volume calculations of soil is 120 lb/ft³, or 1.62 tons/cubic yards.
9. Off-site disposal facility, PDC, assumes each load carries a weight of 22 tons.
10. Construction debris average weight is 10 cubic yards per ton.
11. LTTD process will produce 2% residual.
12. Specific gravity of NAPL is 1.05; therefore, the unit weight of NAPL is 8.76 pounds per gallon.
13. The extraction well system in the PCP area will consist of eight 2" diameter stainless steel wells, screened from 20' to 60' below ground surface.
14. The air sparging points will consist of nine 2" diameter PVC wells screened from 15" to 115' below ground surface. Each sparge point will contain a check valve and be connected to a 4" diameter PVC branch pipe. Each branch will contain a pressure gauge and be connected to the 6" diameter main pipe.

29 pages removed
Non-responsive

INDEX OF DRAWINGS

SHEET NO.	CIVIL NO.	TITLE
1-9	---	COVER SHEET
2-9	C-1	PLAN SHEET
3-9	C-2	PLAN SHEET
4-9	C-3	PLAN SHEET
5-9	C-4	PLAN SHEET
6-9	C-5	PLAN SHEET
7-9	C-6	PLAN SHEET
8-9	C-7	PLAN SHEET
9-9	C-8	PLAN SHEET

LEGEND

---	R.O.W. (RIGHT-OF-WAY)
---	PROPERTY LINE
---	EXISTING CONTOURS
△	SURVEY STATION (I. PIPE)
PP	POWER POLE
+	RAILROAD
o	FENCE
● MW-#	MONITORING WELL
⊙	SANITARY SEWER MANHOLE
W METER	WATER METER
→	GUY WIRE
///	BUILDING
⋈	FIRE HYDRANT
X	GRID LOCATION
---	MATCHLINE
▣	INLET
⌈ or ⌋	ROW OR COLUMN

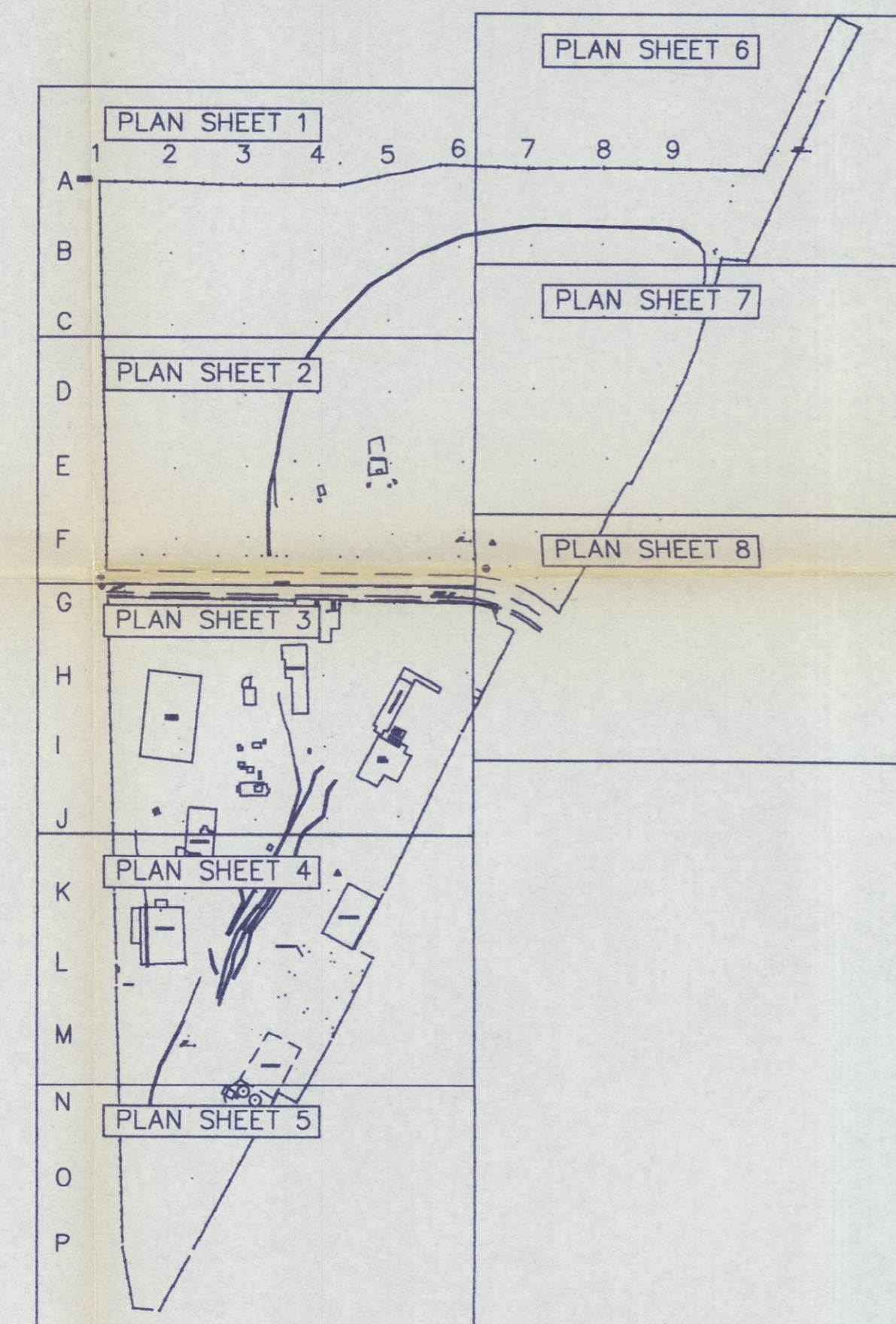
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BENCH MARKS USED

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CENTURY AND 22ND ST. ELEV=421.10

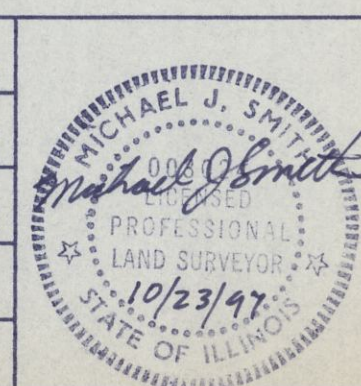
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ALL SURVEY STATIONS SET 3/4" O.D. IRON PIPE
ALL COORDINATES ARE ILLINOIS STATE PLANE SYSTEM
(NAD 83- ILLINOIS WEST ZONE)



DESCRIPTION	NORTHING	EASTING	GROUND ELEVATION	TOP OF CASING
MW-1D	744410.0	2300635.0	421.92	423.88
MW-1S	744417.0	2300642.0	422.06	424.57
MW-2S	744307.8	2301172.0	416.81	419.15
MW-3D	743894.0	2300346.0	420.26	422.42
MW-3S	743902.0	2300347.0	419.74	422.11
MW-4S	743713.8	2300352.1	422.03	421.29
MW-5D	743720.2	2300836.3	421.39	423.18
MW-5S	743739.3	2300876.7	422.16	424.64
MW-6D	743629.7	2300599.1	421.12	422.70
MW-6M	743639.1	2300595.4	421.05	422.90
MW-6S	743649.0	2300593.2	420.94	420.57
MW-7S	743559.0	2300353.0	421.82	421.25
MW-8D	743284.6	2300403.6	422.72	424.65
MW-8S	743315.3	2300364.3	422.51	424.50
MW-8M	743388.1	2300360.2	421.40	423.38
MW-9D	743275.9	2300539.9	422.27	424.44
MW-9M	743237.5	2300535.0	422.39	424.56
MW-9S	743255.3	2300559.7	422.36	424.76
MW-10S	743036.2	2300354.2	421.63	424.05
MW-11M	742913.5	2300386.8	422.86	424.96
MW-11S	742858.0	2300356.1	422.22	425.33

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DATE:	9/26/97



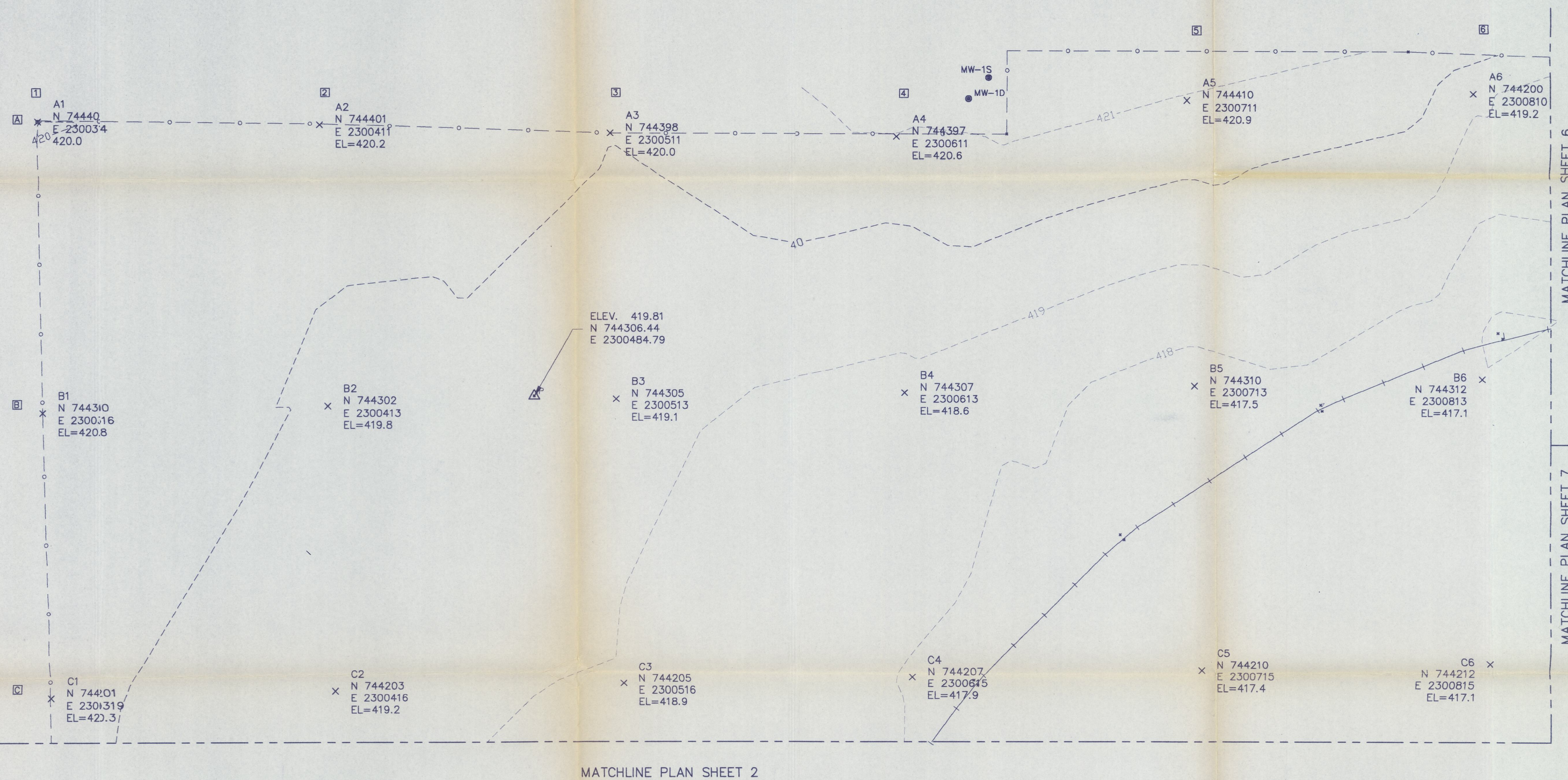
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GRANITE CITY, IL

COVER SHEET
INDEX AND LEGEND

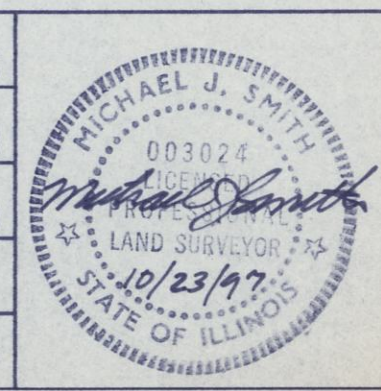
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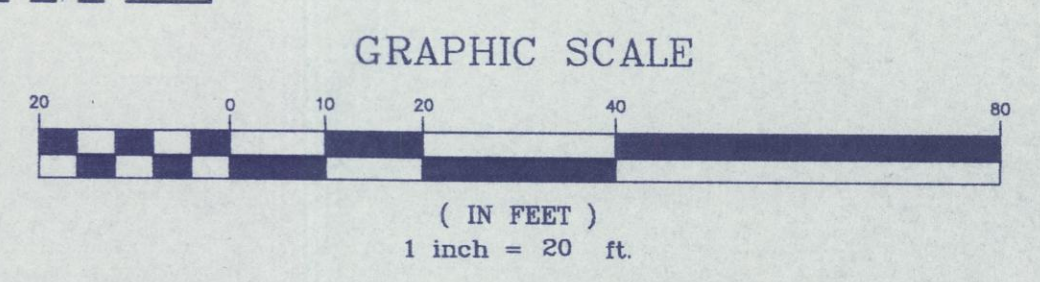
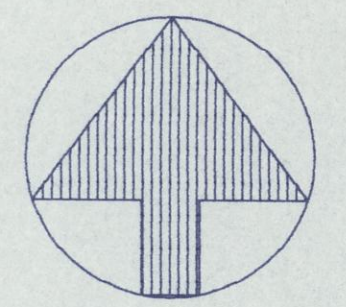
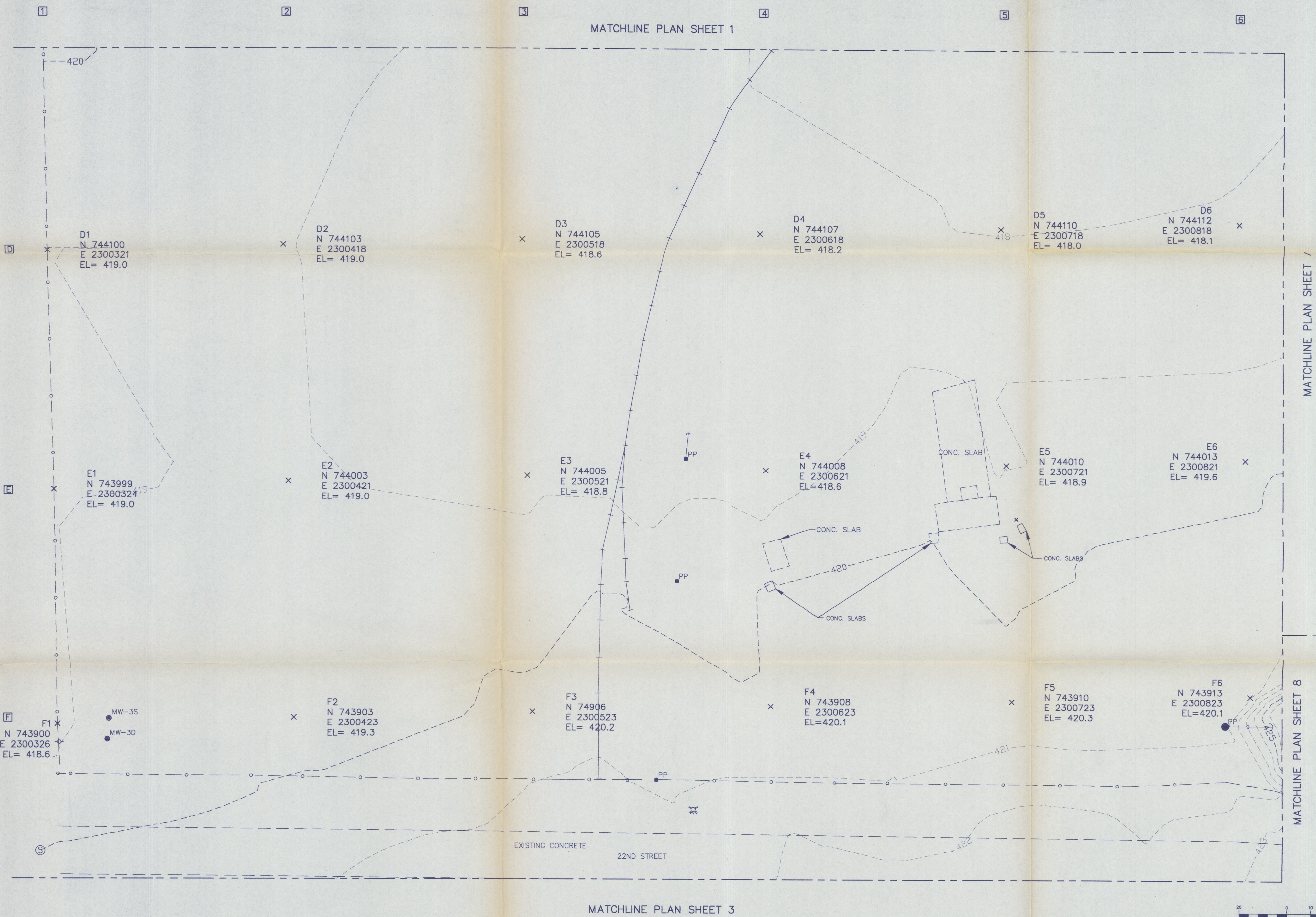
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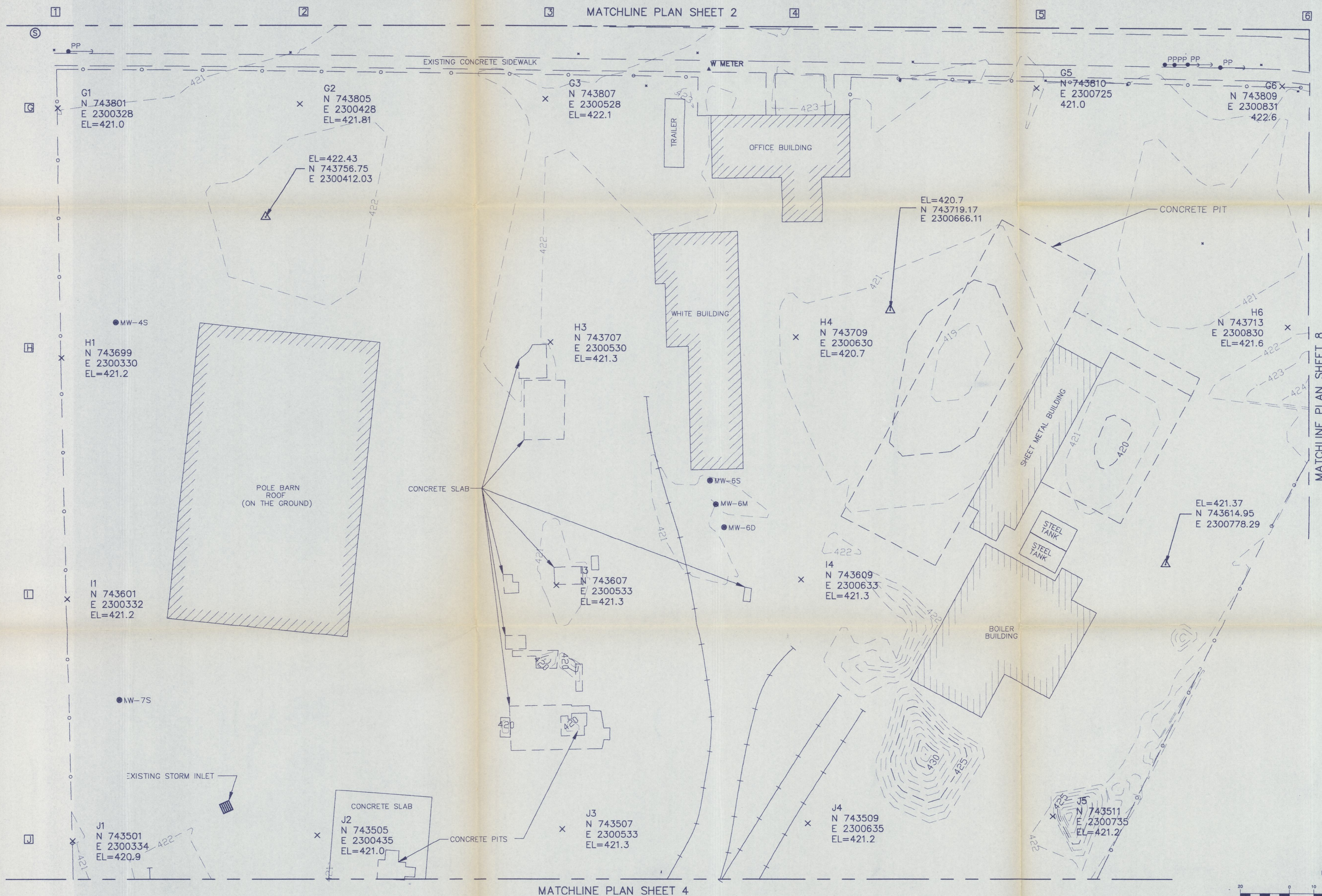
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(314) 241-4744 FAX (314) 241-5054
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PLAN SHEET 3

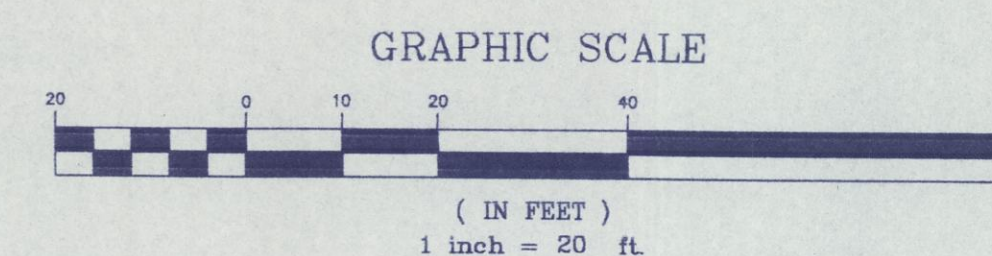
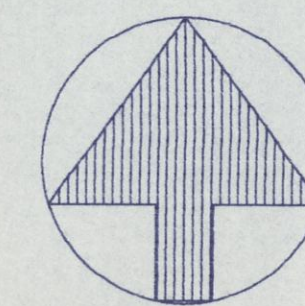
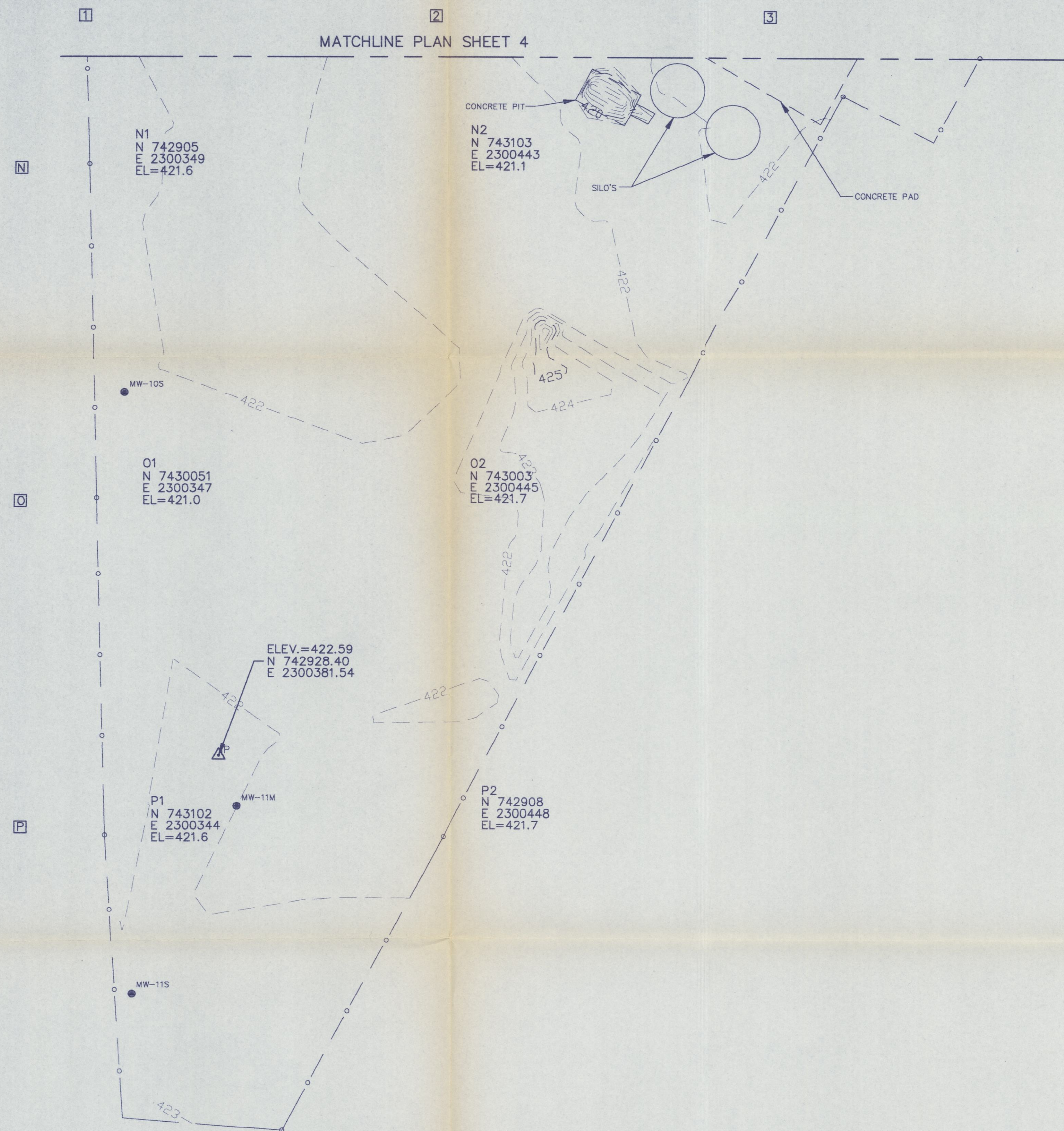
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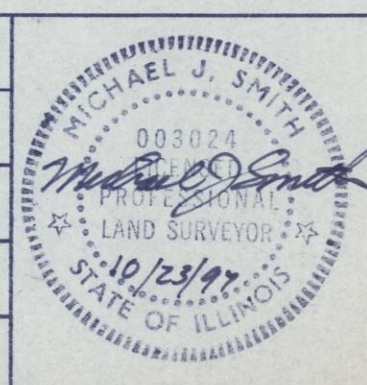
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REV	DATE	BY	APP.	DESCRIPTION

DESIGNED: JLS
 DRAWN: JLS
 CHECKED: NRB
 APP. BY:
 DATE: 8/14/97



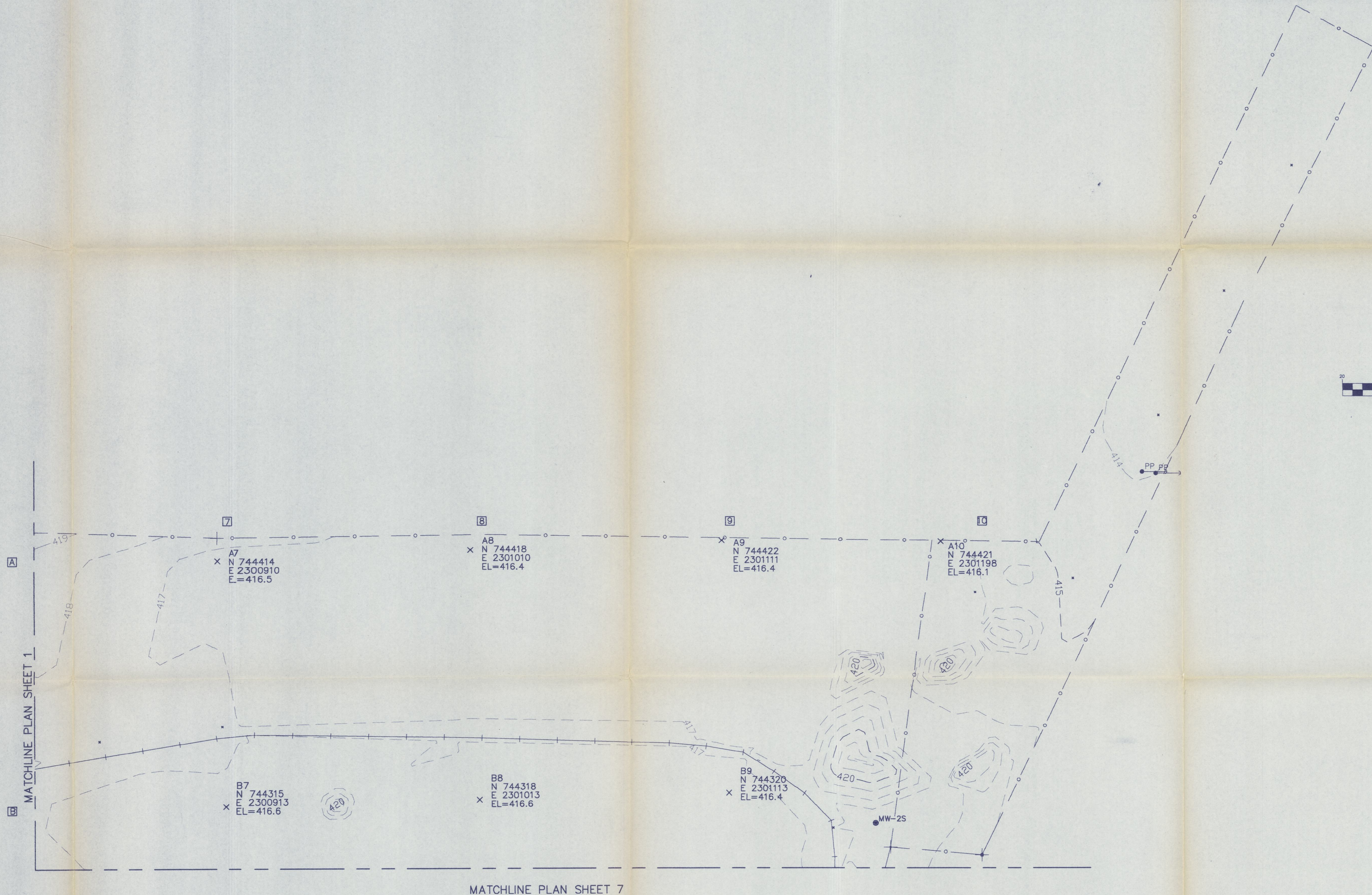
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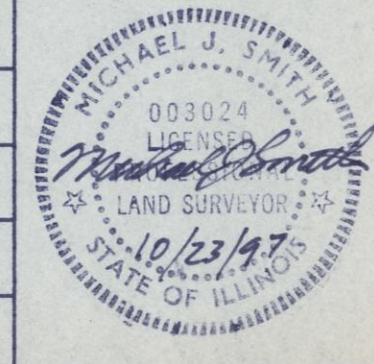
PLAN SHEET 5

CONTRACT NO. 97044
 DRAWING NO. 34-PL5.DWG
 SCALE: 1"=20'
 SHEET NO. C-5



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900 WEST 22nd STREET
GRANITE CITY, IL

PLAN SHEET 6

CONTRACT NO. 97044
DRAWING NO. 34-PL6.DWG
SCALE: 1"=20'
SHEET NO. C-6



REV	DATE	BY	APP.	DESCRIPTION

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DRAWN:	JLS
CHECKED:	NRB
APP. BY:	
DATE:	9/29/97



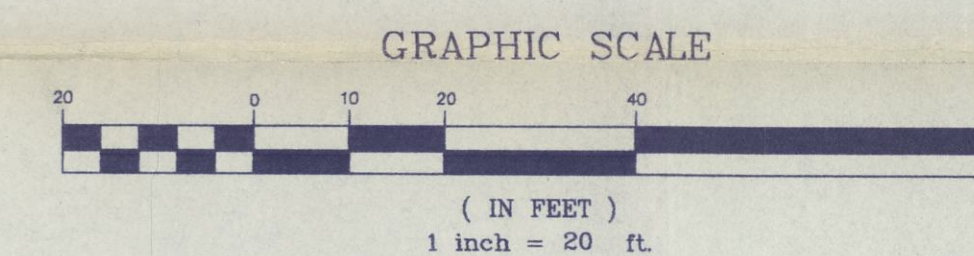
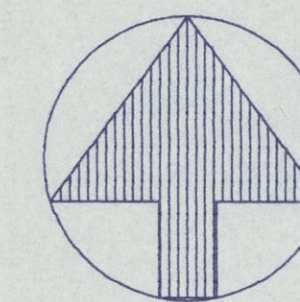
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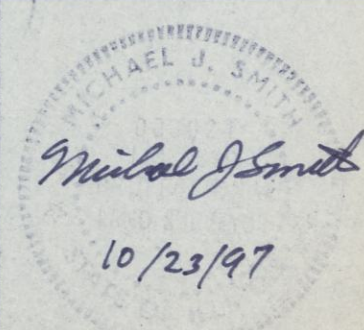

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 GRANITE CITY, IL

PLAN SHEET 7

CONTRACT NO.	97044
DRAWING NO.	34-PL7.DWG
SCALE:	1"=20'
SHEET NO.	C-7



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	DRAWN: JLS						DRAWING NO. 34-PL8.DWG
	CHECKED: NRB						SCALE: 1" = 20'
	APP. BY:						SHEET NO. C-8
	DATE: 9/29/97						